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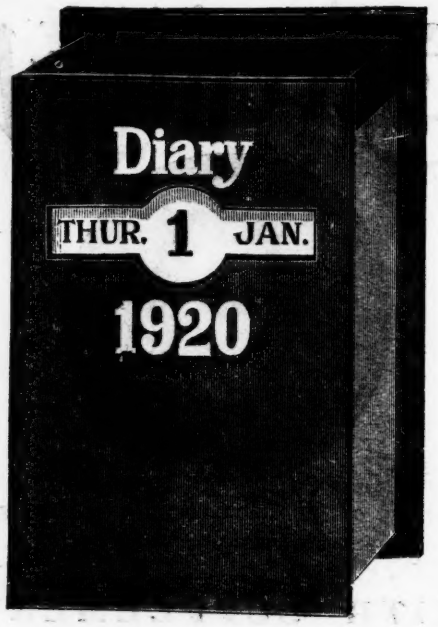

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THE TREATMENT AND MANAGEMENT OF DISEASES DUE TO DEFICIENCY OF DIET:

*SCURVY AND BERI-BERI.**

BY

W. H. WILLCOX, C.B., C.M.G., M.D., F.R.C.P.,
COLONEL A.M.S.,
CONSULTING PHYSICIAN TO THE MESOPOTAMIAN EXPEDITIONARY FORCE (1916–1919).

AMONG the many fascinating and interesting medical problems which presented themselves during the campaign in Mesopotamia those connected with scurvy and beri-beri occupied the foremost place. These two deficiency diseases occurred to a greater extent in Mesopotamia than in any theatre of war.

The enormous wastage caused by scurvy in that campaign can be realized from the statistics available; thus, 11,445 cases occurred in the last six months of 1916. These cases were almost all evacuated to India, since they were quite unfit to undergo the hardships of active service in the field.

The careful investigations made in connexion with these diseases in Mesopotamia, and the results of the management—that is, the scientific rationing—of the troops, have most conclusively established that both scurvy and beri-beri are essentially deficiency diseases and are due to a deficiency in the respective vitamines in the dietary associated with their causation.

From the beginning of May, 1916, until the end of January, 1919, as senior consulting physician to the Mesopotamian Expeditionary Force, I made a special study of scurvy and beri-beri from their clinical aspects and from the point of view of prevention and treatment, and acted as special adviser with regard to deficiency diseases. I would take this opportunity of expressing my thanks to the Directors of the Medical Service, Major-General Sir Francis Treherne, K.C.M.G., and Major-General A. P. Blenkinsop, C.B., C.M.G., for the help and encouragement always given me in this work.

In order to understand clearly the problems which presented themselves in the Mesopotamian campaign in connexion with the management of scurvy and beri-beri it is necessary to pass in review the circumstances which effected the rationing of the troops in so far as they related to the occurrence of scurvy and beri-beri.

The Mesopotamian campaign commenced on November 6th, 1914, when troops under General Delamain landed at Fao; on November 22nd, 1914, when General Sir Arthur Barrett was in command, Basrah was occupied. The force pushed its way up the Tigris, and after a series of brilliant military successes Kut was captured on September 28th, 1915.

From the beginning of the operations until 1916 the Mesopotamian Force was under the control of the Indian Government, and the system of rationing troops was based on the field service scale of rations laid down in War Establishments, India.†

It may be stated now that scurvy in Mesopotamia was practically limited to Indian troops. A few isolated cases occurred amongst British troops; their causation could be traced to inadequate dietary owing to some other diseases occurring in the individual patient.

TABLE I.—*Field Ration of British Troops.*

Bread	1 lb.	Sugar	2½ oz.
Fresh meat	1 lb.	Salt...	½ oz.
Bacon	3 oz.	Pepper	1/16 oz.
Potatoes	1 lb.	Fuel	3 lb.
Tea	1 oz.		

TABLE II.—*Field Ration of Indian Troops and Followers.*

Atta	1¼ lb.	Ginger	½ oz.
Fresh meat	4 oz.	Chillies	½ oz.
Dhall	4 oz.	Turmeric	½ oz.
Ghi...	2 oz.	Garlic	½ oz.
Gur	1 oz.	Salt...	½ oz.
Potatoes	2 oz.	Fuel	1½ lb.
Tea	½ oz.		

Beri-beri, on the other hand, was limited to British troops; practically no cases occurred amongst Indians. Some cases occurred amongst the Chinese Labour Corps at Basrah in 1918, and also amongst the crews on board ships arriving at Basrah. Both of these epidemics were traceable to polished rice as the etiological factor.

A review of the ration scales shows that as regards deficiency disease the ration for British troops was fairly satisfactory. Attention will be called later to the deficiency as regards the anti-beri-beri factor under the conditions of service at the front. For Indian troops the field service ration was very deficient as regards anti-scorbutic vitamines, the only anti-scorbutics being 2 oz. of potatoes and 4 oz. of fresh meat. This deficiency became much accentuated owing to the conditions of service at the front.

The great cause of the wastage in the Indian troops of the Mesopotamian force up to the end of 1916 was scurvy. To understand this thoroughly it is necessary to explain the system of rationing of Indian troops in India prior to 1917. An allowance was made to each soldier equivalent to the cost of the items in the field service ration. He bought his ration from the bunniah or food contractor of his unit. The Indian has the instinct of saving money for his family very firmly implanted in his mind, and under the old system of rationing Indian troops in India there was no guarantee that the Indian soldier bought and consumed even the field service ration. He no doubt often starved himself to save a few annas.

As a consequence of this system the Indian troops arriving from India in Mesopotamia in many cases showed a considerable percentage of men anaemic and debilitated, and suffering from pyorrhoea; they had little balance in the bank, so to say, against the onset of the deficiency disease scurvy, and their latent period would be short were dietetic hardships imposed on them. My colleague the late Colonel H. C. Melville, I.M.S., paid special attention to the examination of Indian troops arriving from India during the latter half of 1916, and he found at this time a considerable percentage of men on arrival to be anaemic, debilitated, and suffering from pyorrhoea. These men were not actually suffering from scurvy, but they were in a condition which strongly predisposed them to it.

The British soldier, on the other hand, came out to Mesopotamia well nourished and with a good balance in his bank against deficiency disease, and if he developed this his latent period would be a long one.

A glance at the map of Mesopotamia shows the military situation up to February 23rd, 1917, when the Tigris was crossed at Shumram and the Turks retreated towards Baghdad. From December 11th, 1915, down to this date the operations of the Mesopotamian Force were directed towards the relief of Kut and the advance onwards to Baghdad.

Basrah and Amara were centres of local production of fresh fruit and vegetables and the incidence of scurvy was very slight amongst the troops stationed there. Beyond Amara there were no centres of local production of fruit or vegetables and troops had to rely entirely on the river transport for supplies of these articles.

Attempts were made by the army to grow vegetables for the troops, but it was impossible to do this in sufficient quantity since in Mesopotamia irrigation is essential for cultivation and a scheme for growing vegetables for the army on a large scale would have taken a very long time to carry out. To grow fruit and vegetables successfully involved a long and intimate experience of local conditions, and it was found that this could be much more economically and satisfactorily carried out by the native Arabs under our supervision; the produce was purchased from them by the army.

During 1915 and 1916 the river transport was taxed to its utmost in conveying troops and supplies and in carrying sick and wounded downstream. No special provision for the transport of fresh fruit or vegetables or fresh meat was available until towards the end of 1916. The climatic conditions of Mesopotamia were such that vegetables and fruit sent by river from Basrah arrived generally in a damaged condition unsuitable for issue.

It is thus obvious that the troops in the front area from December, 1915, to February, 1917, obtained few supplies of fresh vegetables or fruit; this explains the fact that up to February, 1917, there was an enormous incidence of scurvy amongst Indian troops in the front area in Mesopotamia.

[3081]

* A paper read before the Section of Therapeutics and Pharmacology of the Royal Society of Medicine.

† Pages 10 and 11: Table 1, British rations; Table 2, Indian rations.

Alterations of Rations.

The incidence and causation of deficiency diseases in Mesopotamia was thoroughly appreciated, and steps were taken to put the ration scales on a scientific basis in this respect. The army commander, Sir Percy Lake, in 1916 with this object sanctioned the ration scales of July 4th, 1916, which were a great improvement as regards the protection from deficiency diseases.

TABLE III.—RATIONS, JULY 4TH, 1916.

A. *Field Rations of British Troops.*

Bread	1 lb.	Condensed milk	2 oz.
Fresh meat	¾ lb.	Salt	½ oz.
Bacon	3 oz.	Pepper	1/16 oz.
Potatoes	1 lb.	Wood	3 lb.
Tea	1 oz.	Oatmeal	4 oz.
Sugar	2½ oz.	Condensed milk	2 oz.
Cheese	3 oz.	Tobacco (weekly)	2 oz.
Rice	3 oz.	Matches (boxes weekly)	2
Jam	3 oz.		

Extras.

Chocolate	1 oz.	Dates	4 oz.
Bread	4 oz.	Fresh fruit	4 oz.
Lime juice	½ fl. oz.	Dry lentils	2 oz.
Sugar	½ oz.	Curry powder	½ oz.
Rum	4 fl. oz.	Limes (per man)	3

B. *Field Rations of Indian Troops.*

Atta	1½ lb.	Tea	½ oz.
Fresh meat	4 oz.	Ginger	½ oz.
Dhall	4 oz.	Chillies	½ oz.
Ghi	2 oz.	Turmeric	½ oz.
Gur	2 oz.	Garlic	½ oz.
Potatoes	2 oz.	Salt	½ oz.
Fresh fruit	2 oz.	Fuel	1½ lb.
Tobacco (weekly)	2 oz.	(Substitutes same as per British troops.)	
Matches (boxes weekly)	2		
Condensed milk	2 oz.		

Extras.

Atta	½ lb.	Fresh fruit	4 oz.
Ghi, 1 oz., or Gur	2 oz.	Tamarind	2 oz.
Fresh meat	2 oz.	Rum (25 per cent. under proof)	2 fl. oz.
Fresh vegetables	4 oz.		

Later the rations were further improved, and the army commander, General Sir Stanley Maude, who took a very great interest in the prevention of scurvy and beri-beri, sanctioned the ration scales of October 31st, 1916.

TABLE IV.—RATIONS, OCTOBER 31ST, 1916.

A. *British Troops.*

Daily:		Weekly:	
Bread	1 lb.	Pepper	½ oz.
Or biscuit when bread not available	12 oz.	Mustard	½ oz.
Fresh meat	1 lb.	Tobacco	2 oz.
Or preserved when fresh not available	12 oz.	Or cigarettes No. 40, or sweets	4 oz.
Pickles when preserved meat is issued	1 oz.	Matches (boxes)	2
Bacon	3 oz.	Twice weekly:	
Potatoes or fresh vegetables	12 oz.	Marmite (Monday and Thursdays; not in summer)	½ oz.
Or dried vegetables when fresh not available	3 oz.	Thrice weekly:	
Tea	½ oz.	Oatmeal (Mondays, Wednesdays and Fridays)	3 oz.
Cheese (not in summer)	3 oz.	Tinned milk (Mondays, Wednesdays, and Fridays)	1 oz.
Sugar	3 oz.	Rice (Tuesdays, Thursdays, and Saturdays)	2 oz.
Jam or golden syrup	3 oz.	Curry powder (Tuesdays, Thursdays, and Saturdays)	½ oz.
Tinned milk	2 oz.	Butter (Mondays, Wednesdays, Fridays; not in summer)	2 oz.
Salt	½ oz.	Lime juice (Tuesdays, Thursdays, Saturdays; not in winter)	½ oz.
Fresh fruit	2 oz.		
Or tinned fruit 2 oz., or dried fruit 1 oz., when fresh fruit not available			
Soup or oxo (not in summer)	2 oz.		
Fuel (coal 1 lb., wood 1 lb.)	2 lb.		

B. *Indian Troops.*

Daily:		Daily (*cont.*):	
Atta or rice	1½ lb.	Condiments (ginger, chillies, garlic, turmeric)	½ oz.
Fresh meat	6 oz.	Salt	½ oz.
Gur when fresh meat not available	2 oz.	Tamarind or cocum	2 oz.
Dhall	4 oz.	Fuel (wood)	2 lb.
Gur	2 oz.	Thrice weekly:	
Ghi	2 oz.	Ghi (Mondays, Wednesdays, Fridays)	2 oz.
Potatoes or fresh vegetables	6 oz.	Lime juice (Tuesdays, Thursdays and Saturdays; not in winter)	½ fl. oz.
Dried vegetables when fresh not available	2 oz.	Weekly:	
Fresh fruit	2 oz.	Tobacco (Sundays)	2 oz.
Tinned fruit 2 oz., or dried fruit 1 oz., when fresh fruit not available		Or cigarettes No. 40, or sweets	4 oz.
Tea	½ oz.	Matches (boxes)	2
Milk, tinned	2 oz.		

Reviewing the ration scales of October 31st, 1916, we find that as regards protection against scurvy the Indian ration contained:

Potatoes or fresh vegetables—for example, onions	6 oz.
Fresh fruit (limes, etc.)	2 oz.
Fresh meat	6 oz.
Tamarind or cocum	2 oz.
Lime juice (three times a week)	½ oz.

The only difficulty was to convey this ration to the troops. The fierce heat of Mesopotamia rendered it impossible to carry perishable articles, such as vegetables, fruit, and fresh meat, up the 300 mile journey on the Tigris without special provision as regards transport. Down to the later part of 1916 transport was inadequate both on river and land to cope with this great problem. Towards the end of 1916 the transport was much improved, and the refrigerator barges which arrived, with cold storage chambers for fresh meat, were of great value.

Major-General Sir G. MacMunn, K.C.B., Inspector-General of Communications, took a great interest in the problem of conveying antiscorbutics to the troops on the front, and devised crates for the carrying of fresh vegetables and fruit which were of great value in protecting them from damage during transport.

Fresh Meat.

The evidence from the Mesopotamian campaign proved that fresh meat has important antiscorbutic value. During 1916, when the troops at the front, both British and Indian, were unable to get fresh vegetables or fruit for long periods, the only protection that the British had above that of the Indians was the fresh meat allowance of 1 lb. daily. Usually two or three issues were obtained from local supplies of Arab sheep; on other days tinned beef was issued. The Indian troops did not care for meat, and usually had only one or two rations of 6 oz. a week. On other days, owing to their class prejudices, tinned meat could not be issued.

Further evidence of the value of fresh meat was obtained by investigations carried out by Major Marjoribanks, I.M.S., on Indian patients suffering from scurvy, in 1916, at Nos. 9 and 10 Indian General Hospitals. Two parallel groups of scurvy cases were treated on identical lines as regards diet, except that one group was given a daily ration of fresh meat juice; they improved much more rapidly than the other patients. I saw these patients several times in consultation, and can testify to the striking antiscorbutic value of raw meat juice.

The climatic condition of Mesopotamia and the risk of parasitic infection prohibited the general use of raw meat juice in the treatment and prophylaxis of scurvy, but in the treatment of cases of scurvy in hospital the beneficial effect of a liberal allowance of fresh meat was very striking.

Tamarind.

In all probability the tamarind has antiscorbutic properties. It was taken by the Indian troops either as a chutney with stewed meat or, as an infusion with sugar, formed a palatable acid drink. Cocum is a sort of dried plum, which appeared to have no antiscorbutic value. It has had a reputation in India as an antiscorbutic, but it was not liked by the Indian troops, and was little used in Mesopotamia.

Lime Juice.

The ration lime juice up to the end of 1916 had no antiscorbutic value, and produced no beneficial effect on patients suffering from scurvy. It usually arrived in Mesopotamia after a long journey overseas, and was probably six months or more old before issued. At my suggestion, in August, 1916, fresh lime juice was prepared in India from fresh limes, a small quantity of alcohol (5 per cent.) and salicylic acid (2 grains to the pint) being added as a preservative. This was sent to Mesopotamia in special casks with the date of preparation marked on it, and gave better results as regards antiscorbutic properties; it was used in the treatment of patients suffering from scurvy as well as for issue to troops.

Lime juice as a prophylactic against scurvy is of uncertain value, since it is difficult to ensure its delivery to an army in the field within three months of its preparation, and after that time much of its antiscorbutic value is lost. Undoubtedly when fresh it has important antiscorbutic properties, as I saw demonstrated on many occasions in patients suffering from scurvy. After the occupation of

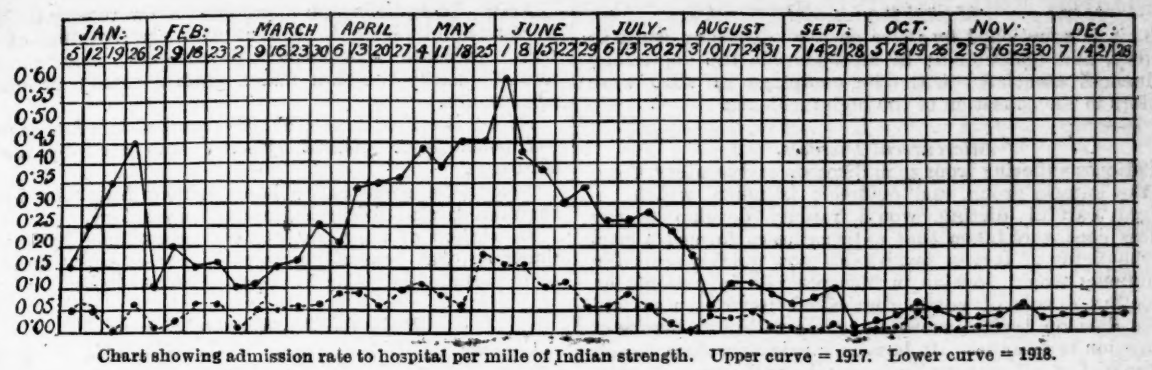

Chart showing admission rate to hospital per mille of Indian strength. Upper curve = 1917. Lower curve = 1918.

Baghdad lime juice was prepared from limes and bitter oranges obtained locally; preservative was added as above described. It was issued to troops with as little delay as possible, and had undoubted value as an antiscorbutic. The recent work of Miss Chick and Miss Hume showing the superior value of lemon juice to lime juice is of great value and interest.

During the deficiency of fresh vegetables and fruit in 1916, owing to the great incidence of scurvy among Indian troops, an order was issued that they should have the first call on the fresh vegetables and fruit available.

Beri-beri in Relation to the Ration Scales.

Indian.—This ration is highly protective as regards antiscorbutic vitamines. Atta, the usual issue to Indian troops, although rice was an alternative, is a wheat flour containing the germ and some of the aleurone layer of the grain, so that it is rich in anti-beri-beri vitamines. Dhall contains the coat and germ of the lentil, and is also rich in anti-beri-beri vitamines.

British.—In 1915 over 300 cases of beri-beri occurred amongst British troops. The India field service British ration was protective against beri-beri, but owing to the inadequacy of transport and the long distances from the base, fresh meat and vegetables were not available for the troops at the front, so that the basis of the ration was tinned beef, bread or biscuits, jam and tea. The British bread and biscuits were made of white flour from which the germ and aleurone layer had been removed, thus depriving them entirely of anti-beri-beri vitamines. The British soldier as regards this became liable to beri-beri, and in many cases became a victim to the disease.

In the July, 1916, ration, oatmeal 4 oz. and dhall 2 oz. were added to the British ration to supplement the British vitamine deficiency. In October, 1916, marmite ¼ oz. three times weekly was added to the ration.

Beri-beri cases occurred in the Dardanelles; I saw practically all of them, and at the suggestion of Colonel C. J. Martin advised the treatment with yeast, which gave satisfactory results.

In February, 1916,[1] I suggested to the Sanitary Committee of the War Office the advisability of an extract of yeast being issued to the troops as a prophylactic against beri-beri. Experiments instituted by Major-General Sir William Horrocks, K.C.M.G., were carried out by Professor Starling, F.R.S., Dr. S. M. Copeman, and their co-workers, who showed that extract of yeast was a prophylactic against beri-beri, and a preparation known as marmite was issued to British troops in Mesopotamia in October, 1916. Marmite can be mixed with warm water and taken like bovril or be added to a stew after cooking. It was undoubtedly of great value as a prophylactic against beri-beri in Mesopotamia, and it was a valuable remedy in the treatment of cases that occurred. It kept well in Mesopotamia, and no difficulty was experienced in its issue as a ration to troops.

In February, 1917, at my request experiments were carried out at Amara to determine the practicability of issuing to British troops bread made with a certain proportion of atta in the flour. Loaves were made with flour containing 100 per cent., 75 per cent., 50 per cent., and 25 per cent. respectively of atta. The bread was very palatable, but the addition of much atta caused some difficulty in the rising of the dough so that the bread was somewhat heavy. Bread made with 25 per cent. of atta was quite as palatable, and differed little except in the slightly brownish colour from ordinary bread. It was issued to several units at Amara with satisfactory results, and later on a general issue to the army on three days a week was sanctioned by the General Officer Commanding in Chief. The issue to British troops of bread rich in anti-beri-beri vitamines was undoubtedly an important factor in the reduction of beri-beri among them.

Rice.

As a causal factor of beri-beri amongst the troops rice did not attract much attention, because atta was almost entirely issued in its place to Indian troops. But in 1918 a Chinese Labour Corps arrived at Basrah, and the men of this unit refused to eat any rice except the polished variety; in consequence a number of cases of beri-beri occurred amongst them. The difficulty was overcome by the issue of atta in place of a portion of the rice ration; the outbreak of beri-beri then subsided.

After the occupation of Baghdad on March 11th, 1917, local supplies of fresh vegetables and fruit and fresh meat became available in ample quantity. General Dickson, C.M.G., C.B.E., Director of the Department of Local Resources, took the greatest pains in ensuring the issue of these articles to the troops throughout the advanced area. It was owing to the adequate supply of fresh vegetables, fruit, and fresh meat that deficiency diseases were stamped out from the Mesopotamian Expeditionary Force after March, 1917.

Statistics.

Scurvy in Indian troops and beri-beri in British troops were very prevalent up to July 1st, 1916, but correct statistics were not available. From July 1st, 1916, scurvy and beri-beri were made notifiable diseases in the army. From July 1st to December 31st, 1916, 11,445 cases of scurvy occurred in Indian troops. In 1917, 2,199 cases occurred, and in 1918 only 825, although the force in 1917 and 1918 had been largely increased.

TABLE V.—*Scurvy in Indian Troops, and Beri-beri in British Troops.*

Year.	Scurvy (Indians).	Beri-beri (British).
1916 (July 1st to December 31st) ...	11,445	104
1917	2,199	84
1918	825	51

The chart shows for 1917 and 1918 the incidence of scurvy, the maximum being in May and June.

As regards beri-beri, records are available showing that 335 cases occurred among British troops to the end of February, 1916, and 104 in the last six months of 1916. In 1917 only 84 cases occurred, and in 1918 only 51 occurred.

ETIOLOGY.

Undoubtedly the prime causes of scurvy and beri-beri are vitamine deficiencies; other factors, however, play a part as predisposing causes.

The Climatic Influences.

The maximum incidence of scurvy was in the hot months of May, June, and July, while beri-beri attained its maximum in November and December.

Mental Depression.

This is mentioned by Osler as a predisposing cause in scurvy, and undoubtedly in Mesopotamia the depressing influences associated with the campaign in 1916 were factors in the causation of the high incidence.

Intercurrent Diseases.

Patients suffering from such diseases as dysentery, those of the enteric group, and epidemic jaundice, which required careful dieting, would rapidly develop scurvy unless care were taken that antiscorbutics formed a part of the dietary. It was remarkable how quickly scorbutic symptoms would develop in Mesopotamia in patients on a dietary devoid of antiscorbutics. I have seen several cases develop typical scorbutic gums within six weeks of admission to hospital. It became a rule, therefore, to add to the diet of all patients in hospital a sufficiency of antiscorbutics—for example, lemons, limes, oranges, etc.—to prevent the development of scurvy.

In the Dardanelles campaign I called attention to the occurrence of beri-beri in patients recovering from an attack of epidemic jaundice. The absence of anti-beri-beri vitamines in the dietary prescribed for the jaundice was undoubtedly the cause.

A few cases of scurvy occurred among British troops in Mesopotamia in men with very carious teeth, who, on account of the difficulty of mastication, avoided eating any fresh fruit or vegetables. I saw one case in a man who had an intense dislike to fruit or vegetables of any kind.

Starvation *per se* does not cause scurvy or beri-beri. In May, 1916, I examined a large number of sick who had been in Kut during the period of its siege (December 11th, 1915, to April 29th, 1917). Many of them showed signs of acute starvation, but symptoms of beri-beri and scurvy were not usually manifest.

TREATMENT.

In order to obtain effective control of the diseases special hospitals for scurvy and beri-beri were established in June, 1917, at Baghdad, Amara, and Basrah—an Indian hospital for scurvy and a British hospital for beri-beri. A special medical officer was attached to each of these hospitals, and special registers were kept in which all the cases of scurvy and beri-beri were fully recorded. In this way the occurrence of either in any unit was at once recognized, and moreover uniformity of diagnosis and treatment was ensured.

Scurvy.

The symptoms of scurvy exhibited by the individual called for special lines of treatment. Anaemia and debility were the early symptoms.

Mouth.—The hyperplastic condition of the gums with characteristic red buds between the teeth, often shown best on the buccal aspect, was the most common symptom. In some cases the gums were so swollen as to present an appearance resembling a new growth. Pyorrhoea, which is quite a distinct disease from scurvy, often accompanied it, and no doubt by its presence tended to accentuate the symptoms of scurvy. Petechiae or patches of haemorrhage occurred in the soft and hard palate; if old they had a pigmented appearance, also a characteristic dark crimson or purplish area of discoloration commonly extended from the inner aspect of the molar teeth upwards towards the palate. This sign was very common, and a very valuable early indication of scurvy. The palate itself was usually pale, owing to the marked anaemia present.

Muscle haemorrhages occurred in about 30 per cent. of the cases, usually in the calf or thigh muscles or around the popliteal spaces or anterior tibial region, forming a hard brawny swelling hot to the touch and tender on pressure.

Oedema.—Scorbutic oedema of a firm brawny type occurred in the legs and feet and around the tendo Achillis; it was of quite a different type from cardiac or renal dropsy, and was often tender. It was too firm to pit readily.

Subperiosteal swellings—for example, along the ulna or tibia—were fairly common.

Effusion into the joints of a haemorrhagic type sometimes occurred.

Skin.—In Indians skin manifestations were very difficult to determine owing to the natural pigmentation of the skin. In white races purpuric patches were very common, and frequently the skin had a general earthy or bluish appearance.

Subconjunctival haemorrhages occurred in a few cases.

Haemorrhagic pleural effusion was seen by me in six cases.

Bowel.—In some cases haemorrhage from the bowel required careful differentiation from dysentery.

Dilatation of the heart, usually accompanied by haemic murmurs, was generally present in severe cases, and was an important indication for a period of rest in bed.

Rules for Treatment of Scurvy.

Captain A. J. Stevenson, M.C., R.A.M.C., who was appointed M.O. in charge of the scurvy wards in the special scurvy hospital at Baghdad, did valuable work. The following scheme of treatment for scurvy in Indians was drawn up by us:

Rest in bed was essential as long as the anaemia or cardiac dilatation persisted; also the presence of muscle haemorrhage, oedema, periosteal or joint haemorrhages, or other severe haemorrhagic symptoms, demanded complete rest in bed.

Local Treatment of the Mouth and Gums.—A solution of ½ per cent. salicylic acid in alcohol was applied to the gums twice daily. A mouth wash of alum and carbolic acid was used frequently; also dental treatment, such as scraping the teeth to remove tartar and removal of carious teeth, was carried out.

Anaemia.—A mixture of iron and arsenic was given for this in addition to the other measures.

Diet.—The diet table was:

6 a.m. Tea and biscuits and 2 oz. fruit.
8 a.m. ½ oz. fresh lime juice.
10.30 a.m. Chappatie or rice with 8 oz. vegetables and two pints fresh milk.
12 a.m. ½ oz. fresh lime juice.
2 p.m. 10 oz. fresh fruit.
7 p.m. Meat 14 oz., vegetables 8 oz.

Tomatoes, cucumbers, and onions were given raw; other vegetables were boiled for twenty minutes.

The accompanying tables show the selection of fruit and vegetables obtainable in the Baghdad area.

TABLE VI.—*Vegetables obtainable in Baghdad Area.*

A. Summer planting commencing from the month of February.		B. Winter planting commencing from the month of September.	
Onions	Tomatoes	Cabbage	Turnips
French beans	Cucumber	Beans	Radish
Haricot beans	Pumpkin	Spinach	Cauliflower
Brinjals	Melons	Beetroot	Lettuce
Lady's finger	Water melons	Carrots	Purslane

TABLE VII.—*Fresh Fruits obtainable in the Baghdad Area.*

A. Fruit produced during the summer locally.		B. Fruit produced during the winter locally.	
Apricots	Figs	Oranges	Limes
Apples	Dates	Tangerine oranges	Quince
Peaches	Pears	Sour oranges	Pomegranates
Plums	Mulberry	Lemons	Citron
Grapes			

One of the most effectual remedies for scurvy is a salad made by cutting raw potatoes into very fine slices, and adding slices of onion and a little vinegar. Captain A. L. Shepherd, I.M.S., at my suggestion tested this in 1916 on cases in the scurvy camp at the front area. He found that it gave a better result than any of the antiscorbutics he was then using.

Physical exercises were given for twenty minutes twice a day to those patients who were sufficiently well.

In a few isolated cases the muscle haemorrhages suppurated and required surgical treatment, incision, etc. The cases of scorbutic haemothorax required treatment by aspiration, in addition to the other treatment of scurvy.

Germinated Dhall.—The discovery in 1917 by Miss Chick and Miss Hume of the value of germinated dhall as an antiscorbutic gives to forces in the field where no fresh vegetables or fruit are available a very valuable antiscorbutic prophylactic. Unfortunately during the trying periods of 1915 and 1916 in Mesopotamia, when antiscorbutics were not available for the troops at the front, this discovery had not been made. After May, 1917, germinated dhall was used in outlying districts in Mesopotamia as a ration when fresh vegetables or fruit could not be supplied. It was used also in hospitals for the treatment of scurvy, but it had no advantage over the use

of fresh fruit and vegetables, and was less palatable. The great value of germinated dhall is that it can be used as a good substitute for fresh fruit and vegetables when these are not available; it is not meant to take their place.

Beri-beri.

In a country like Mesopotamia where toxic influences causing multiple neuritis were present most careful examination was necessary to exclude such causes of multiple neuritis as dysentery, enteric or paratyphoid fever, heat, malaria, sand-fly fever, and diphtheria.

The early signs of beri-beri were those of cardiac weakness accompanied by symptoms of multiple neuritis. A valuable early diagnostic test for troops was the squatting test which I described in 1916.[2] In Mesopotamia the cases were treated on similar lines to those described, the only difference being that marmite was used in place of yeast; it was given thrice a day.

CONCLUSION.

The experiences of the war, specially in distant countries such as Mesopotamia, called for special attention to the scientific rationing of troops. The old idea of sufficiency of calories, or of proteins, fat, and carbohydrates, is quite inadequate. A dietary to be satisfactory must contain proteins, fat, and carbohydrates in the proper amount, and must satisfy the calorie requirements, but it is essential that, in addition, it should be adequate as regards vitamine content—for example, it must be protective against scurvy, beri-beri, and other deficiency diseases.

Too often financial considerations predominate, and I cannot let this opportunity pass without calling attention to the action of the Indian Government in the matter of the rationing of the Indian soldiers serving in India. On February 17th, 1917, a ration was sanctioned by the Indian Government for Indian troops in India. This ration repeats the field service ration which was responsible for the enormous outbreak of scurvy in the Indian troops in Mesopotamia; and, indeed, it is inferior as regards antiscorbutic value, for it entirely lacks any fresh meat allowance. Under a ration of this kind scurvy is likely to be prevalent amongst Indian troops in India, and if at any time they are called upon for active service there is bound to be a great wastage owing to the incidence of scurvy. Rationing of this kind may appear to those without special knowledge economical, but to those who have studied the subject it is a false economy. It seems incomprehensible that after the tragic experiences of Mesopotamia the same mistakes should be repeated.

Since the rationing of troops or of a civil population is carried out usually by the laity not possessing special medical knowledge, the education of the lay mind in the scientific principles which form the basis of a sound dietary is of the utmost importance. For this purpose in Mesopotamia the "Official Memoranda" on scurvy and beri-beri which had been carefully drawn up were circulated not only to all the medical units, but to the commanding officers of all combatant units in the force. The education of the fighting forces in the principles of rationing as regards protection from the deficiency diseases—scurvy and beri-beri—was of great value, for the commanding officers took the greatest care to see that their troops received those articles of dietary which were essential for their protection.

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THE Board of Education has issued a new edition of the *Syllabus of Physical Training*. The general suitability of the syllabus issued in 1909 has been established, but experience has shown that certain modifications and developments are desirable. They have been made on the advice of a committee, after hearing suggestions made by a number of experienced gymnastic teachers. The syllabus has been made less formal; the arrangement of the lessons has been retained, but a considerable amount of free movement has been introduced and "breaks," rather than rests, between the exercises have been recommended, and also that half the lessons should be given to general activity exercises, including games. The exercises and games are classified according to age, and there are appendices dealing with school dress, general activity exercises and games, dancing and swimming.

THE AIMS AND METHODS OF GRADUATE STUDY.*

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THE universal process of reconstruction has led to much discussion on medical education, as the writings of Sir Clifford Allbutt, Dr. Fortescue-Brickdale, Sir James Mackenzie, Sir George Makins, Mr. Thelwall Thomas, Sir George Newman, and others testify, and the present moment affords an opportunity to review some of the problems in connexion with graduate, usually and perhaps unnecessarily called post-graduate, education and teaching.

It is often said, especially in introductory addresses, that we remain students all our days, and this of course should be true; but, in assuming that we are industrious students, possibly some of us flatter ourselves—as an unconscious compensation for the apparently modest admission—for in the face of many distractions it is not so easy to carry this ideal into practical effect as it may seem at first sight. It is natural, by glancing at the weekly journals, to keep more or less in the fashion, so as to be familiar with new names and thus avoid being too obviously out of date, but more than this may be difficult for want of a definite stimulus; the bogey of examination has been safely left behind, and it is only in the naval and military services that the earlier steps of promotion are accompanied by study leave and an examination test. Without some such incentive it is only too easy to stagnate in a gradually narrowing groove, and to remain satisfied with the same outlook and the methods that held the field at the time of qualification, but have become obsolete. The advance of medical science is so rapid that without knowing it—and he seldom does—a man easily becomes a medical Rip Van Winkle. In 1911 the late Dr. J. B. Murphy[4] of Chicago suggested that the licence to practise should be granted only for a certain number of years, five or ten, and that at the expiration of this period practitioners should be required to pass an examination or take a prescribed course of study. The idea of a temporary diploma with a renewal contingent on an examination is not likely to meet with an enthusiastic reception.

But a less drastic step towards the same end would be the grant of some kind of a higher diploma, or even of a degree after a series of yearly courses or after a single prolonged course. This addition would perhaps be analogous to the bar to the D.S.O. or the Military Cross. It might be suggested that whereas an M.B. degree is the crown of undergraduate work, the M.D. now awarded for a thesis or by examination should be given after proof of graduate education. If such a scheme were general the habit of graduate education would in time become almost obligatory instead of optional, and would enable the graduate course to be standardized just as that demanded for qualification has long been. At first sight this may seem a revolutionary proposal, but the principle has long been acted upon in the diplomas in public health and other special branches; and in America certificates, which vary in their value and the standard required, because many post-graduate institutions are proprietary, are given after a course. Certificates were, indeed, given after the Emergency Post-graduate Course of the Fellowship of Medicine. At Harvard, where the minimum time qualifying for a certificate is four months of work occupying the whole day, the question of these degrees was under discussion as long ago as 1913; and though the matter was postponed, the personal opinion of the Dean of the Graduate School[1] was in favour of their ultimate establishment, and to the effect that a systematic course of at least eight months should be required.

Immediate Need of Organization.

The need for organization of graduate teaching on a large scale is urgent because, owing to the reluctance of English-speaking nations and their allies to go to Berlin, Vienna, Munich, and other medical centres of the Central Empires, there is a great opening for efficient and complete

* The opening address of the session at the North-East London Post-Graduate College, Prince of Wales's Hospital, Tottenham.

graduate facilities in this country, and especially in London. That the need exists has been thoroughly realized both in America and in France, where extensive preparations are being made to obviate the necessity formerly felt for a journey elsewhere to acquire the desired facilities. London's unrivalled wealth in clinical material obviously indicates that it should be the leading centre of graduate teaching. Yet though there have been various post-graduate colleges since 1890, when the first scheme under the late Sir Jonathan Hutchinson was inaugurated, it must be admitted that they have not successfully competed with those abroad. During 1919 the Fellowship of Medicine, a body originally formed to promote friendly relations among our brethren of the Dominions and Allies, organized emergency courses, mainly attended by the medical officers of the Dominion Forces and the U.S.A. Medical Corps, who were authorized by their Governments to avail themselves of graduate instruction before they returned home. Similar courses were held elsewhere—for example, in Edinburgh, Glasgow, Manchester, and Birmingham. Courses on the same lines are now going on under the amalgamated Fellowship of Medicine and the London Post-Graduate Association; Edinburgh, Glasgow, Bristol, and Norwich are also engaged in this work. It is sincerely to be hoped that this scheme will be so expanded that a permanent Imperial graduate institution will be organized in London to attract men from the Dominions, India, Egypt, America, and abroad, as well as from this country, in the same way as Berlin and Vienna used to attract them in the past. This matter will be referred to later.

The Organization Needed.

Organized graduate instruction may be divided into three distinct forms from the point of view of time:

FORMS OF GRADUATE INSTRUCTION REQUIRED.

I. The continuation of education immediately after qualification:
   - A. Classes for higher examinations and special diplomas.
   - B. Training for general practice.
   - C. Training for clinical and pathological research.

II. The continuous education of the general practitioner: local hospitals and clinics.

III. Periodic refresher courses.

I.

The continuation of education directly after qualification; this again is of various kinds, and to some extent depends on what branch of the profession the newly qualified man intends to adopt—general practice, public health, the naval, military, or colonial services, specialist or consultant practice, or laboratory research. In any event a resident post as house-physician or house-surgeon is advisable, and in most branches absolutely essential. Quite recently I heard a very distinguished physician ask the pertinent question, "Have you ever known a man recover from the handicap of not having held a resident appointment?"

(A) A brief reference should be made to advanced classes for higher examinations, such as the M.D., M.S., M.Ch., F.R.C.S., and the diplomas of Public Health, Tropical Medicine, Ophthalmology, and other special branches. The first four have usually been taken at the graduate's original hospital comparatively soon after qualification; but the character of the instruction in all of them is obviously so different from that of undergraduate schools that it might with advantage be included in a well organized graduate scheme, and this specially applies in the case of older men who, after some years in practice, are anxious to take a higher degree. The work for the diplomas of Ophthalmology, Psychiatry, and Tropical Medicine can obviously be most efficiently carried out at special hospitals; and instruction in industrial medicine —namely, the care of the health of factory workers, a branch of public health and preventive medicine destined to be of the greatest importance—must be given in the neighbourhood of manufacturing centres.

(B) Before qualification few men realize that there will be much more to learn when once the portal is safely passed; when, however, this has been negotiated, they soon begin to see that, like the preliminary subjects of the so-called ancillary sciences, the hospital knowledge of their professional subjects is only a further though more complete preliminary to the efficient practice of the healing art. Hospital and ordinary practice essentially deal with different aspects and stages of disease; hospital patients are usually acutely ill or well advanced in chronic disease, and mainly require curative or merely palliative treatment, whereas ordinary practice is largely concerned with minor ailments, especially dyspepsia, and the early stages of disease, and should, accordingly, be largely preventive. There is therefore a new aspect of medicine before the recently qualified medical man, even after he has had the great advantage of a resident appointment. When launched into practice he finds that he is at sea, and often the landmarks of definite organic disease on which he has been accustomed to rely in hospital work fail him. This is much more marked now than in the old days of apprenticeship, when a medical student began his career as an unqualified assistant and then did his hospital work before going up for his examinations. A return to this plan is impossible; is there any substitute? Possibly Sir James Mackenzie's idea of the appointment to teaching hospitals of one or more physicians who have spent ten or more years of their professional life in general practice might in some degree meet this need, especially if in connexion with the out-patient department there was an outdoor visiting department, as in some dispensaries, under the supervision of this new type of hospital physician.

(C) Graduates who after holding resident appointments have decided to aim at a consulting and hospital career require further opportunities for clinico-pathological work; a certain number in the past have managed to obtain it, largely on their own initiative, by holding posts such as registrars at hospitals or assistants in the pathological or physiological laboratories, or university studentships. Beit fellowships and grants from various scientific bodies have also enabled men to devote themselves to various lines of research. More opportunities for this line of work will, it may be expected, now become available in connexion with the whole-time directors of clinical units, where help and inspiration might also be given to men from a distance. This is the period for the training in systematic investigation of the future teacher in medicine, who should thereby learn how to direct others in his turn, and with them to advance the science of medicine.

II.

The continuous education of the general practitioner. A continuous process of self-education depending on reading the medical periodicals and textbooks and by keeping careful notes of cases, aided to some extent by attendance at the local medical society, is, of course, possible. Many men no doubt carry out the ideal so appropriate to England, which has been called "the land of individual effort," but the difficulties are great, and it is not to be wondered at that the good resolutions made at the outset fail in the face of adverse circumstances, such as overwork and want of urgent stimulus, to maintain this high ideal. Some men, more fortunately placed by being able to use opportunities in connexion with a local hospital, find the way easier. Local hospitals are a comparatively untapped source for organized graduate instruction, and there should not be any difficulty in arranging demonstrations and a more extended system of clinical assistantships; and in the future the Ministry of Health may multiply these facilities, among which attendance at venereal, tuberculous, psychiatric, and other clinics may play a part. The benefit to the teachers would also be considerable; this was well put more than a hundred years ago by Lyman Spalding[8] to a colleague who proposed to resign his professorship: "Look at the Princes or rather the Fathers of Physic. . . . What has put them at the head of the profession? Nothing but their being compelled to labour, and annually to review their profession, and incorporate with their old stock all the new improvements. Show me a man in private practice who does this annually. He is not to be found. But your friends say that you can do this, yet stay at home. I acknowledge this, but tell me honourably, will you do it? No, Sir, you have no inducement."

III.

Periodic courses of instruction so as to keep practitioners, particularly those isolated in country districts, up to date in recent methods of diagnosis and treatment. They thus learn what can be expected from expert pathological investigation, and gain a broader outlook from contact with other minds and men. These refresher courses should be taken every five years or oftener, and should be

both general and special in character, dealing with clinical medicine, surgery, and gynaecology, and also with the special branches, such as ophthalmology, laryngology, orthopaedics, and radiology. The latter should be so arranged in series that a man could either get a good elementary course in a comparatively short time or by taking more elaborate courses and devoting himself entirely to the subject could eventually become qualified for this special branch of work. The instruction should be essentially practical rather than didactic, with demonstrations in preference to set lectures. Too much stress can hardly be laid on the importance of providing ample facilities for clinical work, particularly in the special courses in which clinical assistantships should when possible be available, so that the technique of diagnosis and treatment can be thoroughly mastered.

A Graduate Hospital School.

The graduate instruction should be centred in a large hospital with which neighbouring special hospitals may be affiliated, and the organization of the extensive facilities available in London should be carried on at a central bureau. The graduate schools in the provinces should also be co-ordinated with the central organization, which may most conveniently have its home in London. Centralization, especially in London, where much time is necessarily spent in going from one hospital to another, is important. The hospital should be entirely devoted to graduate teaching, for general experience proves that undergraduate and graduate instruction cannot be satisfactorily carried out at the same time and in the same institution. Such a hospital, fully equipped with modern laboratories, would take a long time to build under present conditions; and as it is most important that such a hospital should be in working order at the earliest possible moment, it has been suggested that some teaching undergraduate hospital should be given up to graduate instruction. The teaching staff of the graduate hospital and school raises some difficult points; its members should be well known for their teaching ability and in the full tide of their energies. Such men would of course be engaged elsewhere, and in order to obtain their services some plan by which they could be seconded from their existing chairs without losing them would be necessary. A period of years—five or more—has been suggested, but this would make it very difficult to keep their permanent posts open, and it would be better that they should take service at the graduate hospital for short terms of a few months in each year. If the graduate hospital is started *de novo* there would be much less difficulty than in the event of a teaching hospital with its staff being taken over for graduate instruction. In the latter case some of the original staff would necessarily have to make room for the temporary service of outside teachers, and, unless an alternating service, such as obtains in some American hospitals, be adopted, the question of providing an equivalent position would have to be faced.

The duration of these courses also requires consideration, as a man can rarely spend many weeks away from his practice and is then naturally disinclined to sacrifice the whole of his hard-earned holiday. Time is money, and though time thus expended is a good investment, the available capital is too often small. As a result the courses in this country for general practitioners have usually been short and intensive—lasting two or three weeks—such as those at St. Bartholomew's Hospital before the war, which were held in the summer vacation as most convenient both for the general practitioners and from the point of view of the undergraduate school. In 1909, at the International Congress at Buda-Pesth, the opinion was definitely expressed that the State should provide these courses free of charge, and, according to Abraham Flexner,[2] the Central Committee for post-graduate education, with its head quarters in Berlin, had in 1912 organized gratuitous courses for practitioners in forty-eight of the larger cities of the German empire. In this country as the State, through the University Grants Committee with the concurrence of the Board of Education, now subsidizes undergraduate teaching, it is only logical that it should also assist in graduate instruction, and there is reason to believe that it would adopt a sympathetic attitude to this proposal. If in the future a general medical service subsidized by the State comes into being, as seems not improbable, the duty of the Government to provide medical men engaged in such work with periodic study leave would be a natural corollary, so as to correspond to the condition of service in the navy and army. In such conditions a course of three or more months would be practicable and appropriate, especially if some step in promotion, a higher diploma or degree, depended upon attending and showing evidence of having benefited by a somewhat prolonged course.

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THE USES OF FREE TRANSPLANTS OF THE FASCIA LATA IN SURGERY.

BY

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IN using the term "free transplants" I refer to a portion of fascia lata removed from the thigh of the patient for use in some remote part of his own body. I am not able to state with certainty who first introduced this valuable method to the notice of surgeons, but I believe that it is to Murphy of Chicago that we owe its more general application, for he popularized its use in his work on arthroplasty.

I have personally used this method in arthroplasty in the elbow and in the jaw joint with very satisfactory results, but I want to briefly draw attention to its uses under other circumstances which are perhaps less well known.

I.

It is valuable for protecting the deeper structures, such as sutured nerves or tendons during the slow healing of a wound by granulation, or when the superficial tissues are so much damaged that their recovery after suture is likely to be attended with sloughing. For instance, in a man who had a lacerated wound over the dorsum of the right thumb, with complete division of the tendons, it was necessary to protect the latter after suture, because the skin was so much damaged that it was difficult to get it together, and the likelihood of subsequent sloughing rendered sepsis and healing by granulation extremely probable. Under these circumstances, I carefully repaired the tendons with catgut, and then laid a piece of fascia lata about 1½ in. long by 1 in. broad over the line of union, and fixed it in such a way that it extended beyond the area of damaged tissue, thus forming a covering for the tendons, and an effective barrier between them and the skin. The latter was carefully sutured, but part of it was so much crushed that, as was anticipated, sloughing occurred, leaving an area ¾ in. by ½ in. directly over the site of tendon suture to heal by granulation. The floor of this area was formed by the fascia lata which at the first dressing was seen looking white and lifeless, as though it also was about to slough. However, it was not interfered with, and healing by granulation proceeded satisfactorily and completely, with no evidence that the transplant was disturbed. The man made a perfect recovery, and within three months was able to use the tendons, the complete usefulness of the thumb being restored.

Fascial transplants can similarly be used for the protection of sutured nerves, and I have seen it applied in a case of aneurysm of a large artery, where rupture of the sac, following ligature of the main trunk, appeared to be a possibility to be especially guarded against.

II.

It is also exceedingly useful for the replacement of lost tendons, and I have used it with success in war surgery under these circumstances. One patient lost a considerable length of the extensor tendons of his right forefinger. After the wound had soundly healed and had been tested against latent sepsis by exposure to radiant heat, the retracted ends of the tendon were exposed and separated from the scar tissue in which they lay, leaving a gap of about 1½ inches. [No attempt was made to deal separately with the extensor communis and extensor indicis, but it might have been done with the expenditure of a good deal

more time and care.] A transplant of the fascia lata was cut ¾ in. longer than the gap which was to be bridged, and sufficiently broad to allow of its being rolled into a tube. It was laid beneath the ends of the tendon, to which it was carefully sutured with fine catgut, and the sides of the transplant were then wrapped round the tendon ends, and so held by further sutures that it had the appearance of a rolled cigarette, with the remains of the tendon at either end resembling the tobacco. In this case a skin covering could not be provided, and the area had to be covered by a pedicled flap cut from the thigh. The pedicle was divided at the end of a fortnight, and a week later the patient was allowed to make a little movement, but this was not encouraged until six weeks following operation. The usefulness of the finger was completely restored.

III.

Transplants are also useful to cover the exposed brain, where the membranes are deficient, thus preventing it becoming adherent to the scalp.

In one case a patient suffered from severe Jacksonian epilepsy, with almost daily fits, following a gunshot wound of the head, which had already been trephined. On turning back the skin flap it was found to be adherent to the unprotected brain over an area as large as half a crown, and after separation this area presented the appearance of lacerated brain tissue, with a small old blood clot in the centre. The trephine opening was 2½ in. in diameter. A flap of fascia lata was cut ½ in. larger than this opening, and, after separation of the dura from the margins of the bony aperture, the edges of the fascial flap were tucked in so as to form a complete covering for the exposed brain, and a light curtain over the aperture in the skull. The skin flap was then reapplied and carefully sutured without drainage. The patient made a complete recovery, and had no further fits up to the time that I last saw him, some three or four months after operation. It is intended at a later date to close the opening in the skull by bone grafting, now that an efficient background has been provided.

IV.

Similarly, fascia lata may be used for repairing the urethra. I used it in the case of a large fistula which had been operated upon four times without success. I found a rounded opening in the penis, just in front of the scrotum, which would admit the end of a lead pencil. The skin was tucked in, and was adherent to the edges of the urethral mucous membrane. The parts were carefully exposed, using a median incision, and the skin and the urethra were very thoroughly separated. By using a flap cut from the side of the channel which had been established between the urethra and the surface I was able to close the latter without appreciably narrowing its lumen. This looked as if it might of itself have been efficient, but previous operations on these lines having failed, I felt that I must reinforce the union if success was to follow. I therefore covered the area with a flap of fascia lata about 1½ in. long by ¾ in. broad. This was closely fixed over the sutured urethra with fine catgut, and the skin was very carefully drawn together over the fascia and sutured. At the same time a perineal drain was introduced and kept *in situ* for a fortnight. This patient made a complete recovery. There was never any leakage or any suggestion of subsequent stricture, and seven months after the operation I was able to pass a No. 10 rubber catheter without the slightest difficulty.

I have been surprised at the behaviour of the transplants in the presence of active infection. In one case of arthroplasty of the elbow, which I recorded in the *Edinburgh Medical Journal* (May, 1914), there was a severe outburst of suppuration, but in spite of that the large flap of fascia lata which had been used did not slough, and the result as regards movement was excellent.

Similarly, in one of the cases in which the fascia was used to repair a tendon, there was the recrudescence of sepsis which is so familiar in connexion with war wounds. After the discharge of pus the edges of the skin wound separated, exposing what looked like a big yellow slough, but actually the fascial tendon. It was not interfered with, and in a remarkably short time the wound healed by granulation, and the process of repair of the tendon was evidently not interrupted, for the patient regained movement in the terminal joint of the thumb.

These are illustrations of a few of the uses of fascial transplants. Ingenuity and necessity will suggest many more, and my experience leads me to believe that it can be freely used wherever it will fulfil the indications in view.

I have had no trouble associated with the area from which the flap is cut. I always expose it through a vertical incision on the outer side of the thigh, and, except where the transplant has been a very small one, I do not resuture the fascia, and I have seen no trouble from the break in the covering of the thigh muscles, though the patients sometimes complain of soreness and aching in that area for a time.

THREE ACUTE ABDOMINAL CASES.

BY

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THE three cases here reported have occurred since July, 1919, and are all of sufficient rarity to justify their publication. I have never seen a polypus of the stomach before, and I have never found an extensive haemorrhage between the walls of the intestine. The ovarian tumour is rare because of its size. The largest one I had removed previously contained four gallons. In these days it is seldom indeed that they are allowed to reach such dimensions.

CASE I.—*Polypus of Stomach.*

In July, 1919, I was asked to see a man aged 59, in consultation with Dr. Emrys-Jones, who was acting as locumtenent for Dr. Askey Wood. The patient had been suffering for six months from intermittent pains in the abdomen, which were thought to be biliary or renal colic. I ascertained that the pain came on about fifteen minutes after food of any description, but it was more severe after solid than liquid food. If the patient was lying in bed upon his back the pain did not occur, but if he was sitting up it always came on. There was no vomiting. The bowels were constipated. He had lost flesh (1st.). The conjunctivae had an icteric tinge and he appeared to be ill. The abdomen was too rigid to make a full examination, but there was tenderness two inches above and to the right of the umbilicus.

Operation.—I advised an exploratory operation, and the patient was admitted to the infirmary on July 21st, 1919. On July 22nd, under ether and chloroform administered by Dr. W. Miles, the abdomen was opened by a vertical incision through the right rectus muscle. The liver and gall bladder seemed to be normal. There was no dilatation of the stomach, and its appearance was natural. On manipulating the pylorus with my fingers and thumbs I could feel a substance which slipped from side to side within the stomach, and which appeared to be pedunculated. A transverse incision was made over this "substance." On exposure it proved to be a pedunculated polypus about 1½ in. long and ¾ in. broad. The pedicle was attached to the posterior wall of the stomach about an inch inside the pyloric orifice. It was ligatured and removed. The stomach and abdominal wounds were closed in layers.

Description of Polypus.—The specimen removed was sent to Birmingham University for examination. Dr. Ball reported as follows:

"*Polypus of Stomach.* The growth is a simple adenoma consisting of gland spaces lined by a columnar epithelium. The epithelium shows degenerative and proliferative changes, and is frequently desquamated into the lumen of the acinus, but is everywhere contained within the basement membrane, and is, I think, without malignancy. Some of the acini are enlarged to form cysts, the contents being derived from degeneration of the lining cells."

After-History.—The patient made an uneventful recovery. The abdominal wound was healed on July 30th and the sutures were removed from it. He was able to take food without pain, and was discharged from the infirmary on August 18th. I saw him on October 2nd. He was then well, had gained 6 lb. in weight, and could take solid food without discomfort.

The diagnosis in this case appeared doubtful, but had we appreciated the importance of the history we might have suspected such a condition. The fact that the patient was free from pain when lying on his back was certainly significant when considered with the condition revealed at the operation—namely, "a pedunculated polypus . . . attached to the posterior wall of the stomach about an inch inside the pyloric orifice."

CASE II.—*Large Haemorrhage into Wall of Caecum.*

On October 4th, 1919, I was asked to see, with Dr. Brocket of Stourport, an unmarried lady, aged 22. She had been seized with sudden pain in the right iliac region the previous evening, when she vomited. The temperature was 101° and the pulse

120. The abdomen was too tender to palpate. There appeared to be a mass in the right iliac fossa. She was removed to my nursing home.

Operation.—Ether and chloroform were administered by Dr. Craig, and Dr. Brocket assisted me. The abdomen was opened by a vertical incision through the right rectus muscle. Some serous fluid escaped, and a large cystic mass was seen. It was about eight inches by four inches, and extended down into the pelvis. When it was delivered it was found to be the caput caeci. The appendix was inflamed. It was removed and the stump inverted with a purse-string suture. During the manipulation the cyst burst, and a pint and a half to two pints of blood escaped. The collapsed cyst wall appeared to be composed of peritoneum and the muscular wall of the caecum. There had, in fact, been a haemorrhage between the muscular and mucous coats of the caecum. The bowel was returned to the abdomen and a drainage tube left in the lower angle of the abdominal wound.

After-History.—The following day the patient's condition was unsatisfactory; her pulse and temperature were still up, and there was some abdominal distension. She was again placed under chloroform and ether by Dr. Craig, and I opened up the wound. Nothing further was discovered; the caecum had a more normal appearance, as the collapsed sac wall had contracted. The drainage tube was left in. The patient gradually improved. The tube was removed on October 10th; the stitches were taken out on October 15th. The wound had healed, except the sinus where the tube had been. She was discharged on November 8th.

I do not think the inflammation of the appendix was sufficient to account for this haemorrhage. It appears to me more probable that it was due to a strain received by the patient during the afternoon of October 3rd, when, in her capacity of lady gardener, she was moving a number of chrysanthemums in pots.

CASE III.—*Large Ovarian Cyst.*

A married woman, aged 61, was sent to me by Dr. Crawford Newland, suffering from a large abdominal tumour. She stated that she had been aware of it for three years, but that it had increased in size more rapidly during the last six months. The girth at the umbilicus was 56 in. From the ensiform cartilage to the pubes was 25 in. The tumour was freely movable and fluctuating. On November 4th, 1919, under chloroform and ether administered by Dr. W. Miles, the abdomen was opened by a vertical incision through the right rectus. The cyst was tapped and the fluid withdrawn. The cyst wall was ligatured and removed. It was a cyst of the right ovary. The fluid measured 6½ gallons, and the solid weighed 3 lb. 2 oz.

The patient made an uneventful recovery. The wound was healed and the stitches were taken out on November 12th.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A NEEDLE IN THE ALIMENTARY CANAL.

AT a meeting of the Midland Medical Society held at Birmingham on November 12th, 1919, Mr. Christopher Martin showed a specimen of a concretion formed around a pin in the appendix. I think the narration of the following case may prove interesting.

After a rather long walk (August, 1913) a lady complained of severe pain in the region of the anus. I saw her soon after, and on examination felt what I at first took to be a hairpin fixed across the bowel close to the anus. After some difficulty I managed to remove it. It proved to be a darning needle 1⅛ in. long, quite black and dull. The patient had no idea how it came there. It must presumably have been swallowed, possibly in soup.

The history of the case as given by the patient herself is remarkable, indicating that, in the course of perhaps nearly twenty years, the needle travelled the whole length of the alimentary tract without producing a fatal result, although it apparently came near doing so. In 1897 the patient suffered from indigestion and what was diagnosed as gastritis, and was allowed only fluid food. In 1907 she had a violent attack of haematemesis, bringing up about 2 pints of pure blood, and she nearly died; the haemorrhage ceased within forty-eight hours, after treatment including rectal feeding, ice, and albumin water. Subsequently she suffered from occasional recurrences of acute epigastric pain. In July, 1913, about a month before the needle was found, she had an attack of acute pain in the region of the duodenum, which a medical man whom she consulted in London thought might be appendicitis, but when he heard the story of the needle he concluded it was due to that. With regard to the severe haemorrhage in 1907, it is probable that the needle pierced some blood vessel in the neighbourhood of the stomach. Altogether I consider the passage of the needle during all those years through the whole alimentary tract very remarkable, and the patient is to be congratulated on its successful termination. She has had no recurrence of any symptom of gastritis since the discovery of the needle.

Chichester. HEYWOOD SMITH.

MAMMARY SARCOMA IN OLD AGE.

AN interesting pathological curiosity is presented in the following case:

Mary N., admitted May 7th, 1902, for senile dementia, died on October 11th, 1919, at the age of 98, from sarcoma of the breast with pulmonary metastases.

Three and a half months earlier attention was drawn to the right breast by the fact that during routine bathing she shielded the organ with her hand. There was no sign of trauma nor had there been any history of injury or previous indication of any new growth.

The breast did not appear to be enlarged, but seemed to be painful, as she resented the slightest interference. The nipple was not displaced; several hard small masses were scattered through the substance of the gland; their outlines were indefinite, and they did not appear to be attached to the skin, the nipple, or the pectoral muscle. The axillary lymphatic glands were not enlarged; owing to her senile state operation was not undertaken.

The breast rapidly increased in volume and soon attained the size of a football. The skin became stretched and shiny, the veins enlarged in size, and increased in number. The whole organ pulsated visibly and palpably, and in places appeared to be cystic. The skin eventually gave way over the upper and outer part of the mass, but the patient died before a fungating mass could form. On one occasion during the last month the patient coughed up a small clot of blood, but apart from this the symptoms and signs were localized to the right breast.

Pathological Characters.

The right breast with some remnants of pectoral muscle weighed 11 lb. 14 oz. The growth had infiltrated the pectoralis major but had not extended to the chest wall. Beneath the skin were plexuses of dilated veins and numerous haemorrhages. On section an irregularly shaped central cavity holding about half a pint of dark brown fluid and blood clot was found. The surface of the walls of the cyst were roughened by clot deposit and tissue torn by haemorrhages. The tumour cut toughly and varied in appearance, in some parts white, in others intensely vascular and spotted with numerous haemorrhages of varying size. The associated axillary and clavicular lymphatic glands were not enlarged. The left breast showed no abnormality. The right lung weighed 21 oz., the left 18 oz. Scattered through the substance of both lungs, but more particularly just below and on the surface of the visceral pleura, were numerous metastases, varying in size from small well defined pea-like nodules to one the size of a turkey's egg, forming a sessile tumour at the base of the right lung in the mid-axillary line, its pleural surface having contracted recent adhesions with the parietal pleura. The smaller nodules on the pleural surface had a white smooth button-like appearance, their sessile character being due to collapse of the adjoining lung tissue. The metastases on section presented a similar appearance and density to the original growth, the smaller were white and fleshy and the larger strewn with numerous haemorrhagic points. The pulmonary tissue intervening between the metastases showed no gross abnormality. The pleural cavity and parietal pleura were otherwise normal. The heart and liver showed senile degenerative changes. The brain was atrophied, especially the frontal convolutions where the thickness of grey matter was much reduced.

The kidneys weighed, right 4 oz., and left 3 oz.; on section the cortex was indistinguishable from medulla; both were paler and tougher than normal, and the capsules stripped with difficulty, tearing away portions of the adherent renal tissue. The vessels were arterio-sclerotic.

Microscopic sections were made from the breast growth and from one of the pulmonary metastases by the paraffin method. Both showed similar microscopic characters, the only difference being that the section from the secondary deposit appeared more vascular than that from the parent growth. The cells were large spindles; the intervening matrix was slightly fibrillated, and the vessels lined by cells similar to those of the rest of the tumour. Glandular acini were not observed in the section either of the parent growth or the secondary deposit.

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THE late Mr. William Carnelley, of Fallowfield, has bequeathed £2,000 to the Beckett Hospital and Dispensary, Barnsley, for the endowment of two William Carnelley beds, £1,000 to the Manchester Royal Infirmary and Dispensary, £400 to St. Bartholomew's Hospital, London, and £300 to Guy's Hospital, London.

Reports of Societies.

DIVERTICULITIS.

A DISCUSSION on diverticulitis was held on January 7th by the Subsection of Proctology of the Royal Society of Medicine. Mr. LOCKHART-MUMMERY, president of the subsection, was in the chair. An excellent collection of pathological specimens, drawings, and radiograms illustrative of the subject under discussion was on view before the meeting, and was available for inspection at the Royal Society of Medicine until the conclusion of the adjourned discussion on Wednesday, January 14th.

INTRODUCTION.

The discussion was opened by Dr. W. H. MAXWELL TELLING (Leeds), who directed his remarks to the broad lines of the subject, and mainly to its clinical aspects. The situation to-day, he said, was the same as in 1917, when in reviewing the subject, he wrote:[1]

> Diverticulitis is a condition which has now passed out of the realm of doubt and uncertainty into that of proved and accepted fact. It has an important place in medical literature, and in the experience of every operating surgeon of large practice. This last statement is not as yet true of all clinicians, some of whom are still apparently unaware of the condition, and not a few of its frequency and clinical importance. Not until a morbid condition is described in all the ordinary students' textbooks[2] of medicine and surgery can it be said to have attained complete recognition, and this is not yet the case with diverticulitis.

He continued:

Diverticulitis means any inflammatory change in any diverticulum or series of diverticula. In practice, however, usage has restricted the term to the inflammatory changes and secondary pathologic processes generally occurring in or in connexion with a *certain type of diverticulum*. This type is the secondary, acquired, multiple, false diverticula of the *large* bowel, particularly and nearly always found in the sigmoid flexure. The diverticula occur mainly in the lower part of this structure, in small or great numbers, but may be found elsewhere, as in the descending colon, the other flexures, the caecum, the rectum, or throughout the entire large bowel. They may be limited to these special positions, though when in them are more usually associated with sigmoid lesions as well; if so limited they may give rise to puzzling and anomalous symptoms. The caecal cases especially are of considerable interest, and merit much more attention and investigation than they have hitherto received. Occasionally there is a widespread tendency to diverticulum formation throughout the whole intestine. For convenience, however, I shall confine my remarks to the typical lesion as it occurs in the sigmoid flexure.

Historically, diverticulitis may fairly be said to be a new subject. Odd specimens had been described from time to time during last century, but such descriptions were "buried" and isolated, and the clinical aspects of the lesion were for all practical purposes unknown.

Peridiverticulitis.—In 1898 Graser[3] described examples associated with fibrous hyperplasia, causing stenosing tumour formation—peridiverticulitis. Similar cases were then described in America, and Patel,[4] in France, drew particular attention to the more acute inflammatory lesions—sigmoiditis and peritonitis. I observed my first case in 1899, and finding nothing about it in the literature, or even anyone who was familiar with the condition, I thence onwards made it a practice to examine almost every sigmoid flexure personally at the autopsies I made. The result was the accumulation of a considerable amount of material.

Classification of Cases.

In 1907 Moynihan[5] published the first case in England of the Graser-tumour type, and this induced me to analyse and classify my cases. This I did in 1908,[6] and this was the first time the subject had been treated as a whole and the various pathological findings and clinical symptoms correlated, or that any complete arrangement and classification had been attempted. That classification has been in essentials accepted by almost all subsequent writers and observers, and writing now twelve years later, when a very considerable number of cases has been observed and recorded, I have no important modification to offer.

The reason that this early "stabilization" of the subject was possible is this—given the occurrence of a tendency to the formation of multiple, hernial outpushings of the mucosa in the sigmoid flexure, every secondary process that does in fact occur may be logically deduced *a priori* by general pathological comparison and study. I am not proposing to deal with the vexed question of *why* these diverticula occur in the first place, except that there is no doubt that they are largely, if not entirely, due to increased pressure from within the bowel. Constipation, therefore, plays an important part, but I feel convinced that flatulent distension, often, of course, coexisting, plays a part that cannot be overlooked and needs more study.

Pathological Anatomy.

A knowledge of the anatomy of these diverticula is of the first importance in understanding the secondary pathologic processes, and also in detecting them at all, either in the deadhouse or at operation. At this point the inquiry is pertinent as to how it comes about that the condition has for so long escaped practical recognition, having regard to the large number of cases recorded—not a tithe of those observed—since 1898. The answer is, I think, to be found in three facts: Firstly, the majority of demonstrators of morbid anatomy fail to devote special and personal attention to the sigmoid flexure and perhaps to those surgical autopsies in which, from their point of view, the surgeon has "spoiled" the abdomen generally, and a specimen in particular, by his manipulations, particularly when the structures operated on have been more or less inflamed, adherent, and "mixed up." Secondly, the diverticula themselves are "adepts" at concealment; to this I will return later. Thirdly, the secondary pathologic processes are liable to be so extensive and disproportionate to the comparatively insignificant diverticula as to hide the true nature of the case from any but patient and skilled observers. This must be the general experience of all who have studied a series of specimens *in situ*.

The second of these points—the "self-concealment"—turns upon the anatomy of the diverticula. Firstly, they are small, varying from minuteness up to the size of the last joint of the little finger; more commonly they are one-third to one-fifth of this size. Their apertures are often minute, from one-sixteenth to one-third of an inch in diameter, and these apertures usually occur in two rows, mostly opposite the appendices epiploicae, and often completely concealed by the rugose mucous membrane. On the outside of the gut the diverticula are seldom observed except by the trained eye, because (1) they mainly enter the appendices epiploicae as stated, and (2) the gut in which they occur is very frequently fat-laden, necessitating careful dissection to discover them at all. The occurrence of adhesion to other structures, and of peridiverticular hyperplasia, tends still further to conceal and almost to obliterate their presence. Even so, that isolated observation on them for over a century should have failed to lead to complete recognition is a little remarkable, but none the less a fact. These anatomical points must be fully appreciated by every operating surgeon if he hopes to recognize the condition at the time of the operation.

Secondary Processes.

Once the diverticula are "in being" the whole series of possible consequences depends upon the following three facts: (1) Being formed by pressure from within they tend to enlarge; (2) they tend to harbour faecal or other harmful contents; and (3) as a consequence they tend to undergo various secondary pathologic processes. In their enlargement they become flask-shaped, with a bottle-neck; this bottle-neck may greatly elongate, its lumen remaining very narrow. This elongation is brought about by peridiverticular hyperplasia, which often pushes the "flask" to its circumference, where it "sits" on the surface of the tumour and works special mischief of other kinds, such as adhesion, perforation, and fistulous communication.

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[1] *British Journal of Surgery*, vol. iv, No. 17. To this article reference may be made for a detailed study, with analysis of cases.
[2] A small paragraph first appeared in the 1910 edition of Osler's *Medicine*.
[3] *Centralbl. f. Chir.*, 1898.
[4] *Lyon Chir.*, 1911, vi.
[5] *Edin. Med. Journ.*, 1907, xxi, p. 223.
[6] *Lancet*, 1908, i, p. 843.

The narrow mouths tend to promote the *retention of faecal contents*, soft, or forming actual concretions. Here analogy with appendicitis will largely help us to prophesy results, except in regard to the remarkable hyperplastic peridiverticulitis. The faecal contents form a bacterial *nidus*, a reservoir of toxins and a source of mechanical irritation. As a result secondary changes supervene; if not, the condition remains a harmless pathologic curiosity, and gives rise to no symptoms or trouble. Perhaps the large majority of instances are largely or entirely innocuous. The main secondary processes which occur, separately or variously combined, are:

1. Ulceration of the mucosa of the diverticula.
2. Perforation as a consequence.
3. Adhesion to other structures, which, when combined with (2) leads to fistulous communication.
4. Peridiverticular fibrous hyperplasia, leading to tumour formation and, as a sequential result, stenosis of the bowel.

Confining our attention to these main and usual secondary processes, which, as has been stated, may be variously combined, a few moments' consideration will show how protean and puzzling the resulting clinical manifestations may be. In the first place, mucosal ulceration will weaken the wall of the sac. This will facilitate perforation, and a concretion will be specially liable to be driven through at any time of increased pressure or violent effort, causing a local or general peritonitis. In quite a number of cases this has actually happened.

The mucosal ulceration also sets up inflammation on the outer surface of the diverticulum, leading to adhesions. These may produce no important results, but may produce vesical or pelvic syndromes, or an acute intestinal obstruction by band or kink. Adhesions *plus* perforation lead either to local abscess, with its varied symptoms, signs and sequential risks and possibilities, or to fistulous communication with other viscera, of which that with the bladder is the commonest, most interesting, and surgically the most important instance.

The culminating interest is reached, however, in the production of the fourth type of lesion, the *peridiverticular hyperplasia*. This may exist with mucosal ulceration of the diverticulum, but not infrequently occurs without it, and is a common and characteristic result — the one which first led to a systematic investigation. It is undoubtedly due to a chronic leakage of toxins or bacteria, or both, through the sac walls, producing a hyperplastic fibrous tissue formation somewhat similar to that found in a hyperplastic tuberculosis of the caecum, or more closely resembling a scirrhous cancer. Because of the hyperplasia, which may amount to an inch or more in thickness on section, a tumour is produced; because it is fibrous the tumour contracts and stenoses the bowel, tending towards chronic intestinal obstruction. This thickening and stenosis may be so local as to make an annular stricture, and it will be realized thereby how close may be the mimicry of carcinoma. In this way doubtless many of the cases of so-called "cured" cancer in this region may be explained, as well as the placing on museum shelves of examples of peridiverticulitis labelled cancer. Others besides myself have found them.

Relation to Carcinoma.

There is, however, a very special relation of the condition to true carcinoma. A simple peridiverticular stenosis (or possibly other diverticular lesion) may develop carcinoma secondarily, as in the case of a chronic gastric ulcer. A small number of cases have now been put on record, and since my last records were published in 1917 I have had a further case. The patient was riding and felt a sudden pain in the left iliac fossa, followed by temperature and signs of inflammation. I made a diagnosis of perforative diverticulitis, and Sir Berkeley Moynihan operated and confirmed, finding multiple diverticula, one of which had perforated and set up general peritonitis. There was also some thickening and stenosis, but no naked-eye evidence of malignancy. A year later a second surgical inspection was made and malignant disease was then obvious and inoperable.

It is not too much to say, therefore, that no surgeon ought to decide about or operate on a supposed carcinoma of the sigmoid flexure without an accurate knowledge of what may be termed "diverticular possibilities," nor ought any such tumour removed by operation to lack a systematic examination for the presence of a diverticulum. It was only by this means that Moynihan detected and recorded the first of such cases in the English literature.

Grouping of Secondary Processes.

We can usefully divide the secondary processes into two groups: (*a*) *Mechanical* (mainly), and (*b*) *inflammatory* (mainly). Both processes may go on in the same case, just as there may be present together varying types of inflammatory reaction.

A. *Mechanical:*
1. Formation of faecal concretions in the diverticula.
2. Torsion of the diverticulum.
3. Lodgement of foreign bodies within the diverticular sac.
4. Perforation.

B. *Inflammatory:*
1. Diverticulitis: (i) Gangrenous, (ii) acute, (iii) subacute, (iv) chronic, (v) latent.
2. Passage of organisms without perforation.
3. Peridiverticulitis—chronic proliferative inflammation with tendency to stenosis of the bowel.
4. Perforation of the diverticula, giving rise in particular to: (i) General peritonitis, (ii) local abscess, (iii) fistula, especially into the bladder, (iv) suppuration in a hernial sac.
5. The formation of adhesions, especially to (i) the small intestine, (ii) the bladder, (iii) the female genitalia.
6. Chronic peritonitis, local.
7. Chronic mesenteritis of the sigmoid loop.
8. Metastatic suppuration.
9. The secondary development of carcinoma.

Symptoms.

By the aid of this pathologic series it is not difficult to forecast the main clinical symptoms and also to surmise that they will be liable to be variable, complex and puzzling. This is so in fact, as a study of case records abundantly proves. At the same time the majority of cases conform more or less to the following types:

1. Inflammatory trouble or tumour in the left lower quadrant of the abdomen;
2. General peritonitis;
3. Vesico-colic fistula;
4. Pelvic syndromes;
5. Intestinal obstruction;
6. Mimicry of carcinoma.

The frequency of tumour or abscess formation in association with any or all of these is considerable (about 30 per cent.), and one may say that any case from the age of 30 onwards presenting these symptoms calls for a mental reservation as to the possibility of a diverticular origin, and in some instances the diagnosis can and has been made with certainty and accuracy. As general clinical points, it must be remembered that cases occur mostly at or after middle age (though a few cases in early life have been noted), in males more frequently than females, usually with a history of constipation, and very seldom causing blood in the stools. A few comments are called for on some of the foregoing clinical types of case.

Inflammatory Trouble, more or less Acute, in the Left Lower Quadrant of the Abdomen.—Cases of this type constitute by far the largest group. Erdmann has gone so far as to say that the occurrence of left-sided pain, with mass or not, but with tenderness and rigidity, is practically pathognomonic of diverticulitis. This is the extreme view, favoured by the main supporters of the almost exclusive rôle of diverticula in inflammatory troubles in this quadrant. Fitz in 1912 said that the cases comprised in this "inflammatory" group made a fairly complete picture of what must be recognized as a new disease of the lower abdomen —diverticulitis of the left quadrant, analogous to appendicitis of the right quadrant. Various subtypes of the inflammatory group may be distinguished, and a useful clinical classification is as follows:

1. *Acute and Fulminant* (gangrenous). — Symptoms practically identical with acute right-sided appendicitis.

2. *Recurrent.*—Acute or subacute attacks over a long period.

3. Cases ending in *spontaneous recovery.*

4. *Protracted Cases.*—Those which continue till the clinical picture is changed by one or other of the following developments: (*a*) Simulation of carcinoma, (*b*) intestinal obstruction (acute or chronic), (*c*) bladder perforation, (*d*) general peritonitis, (*e*) incidence of pelvic symptoms.

Trauma.—The mode of onset of many of the acute cases is of interest as showing the great part which trauma of various kinds may play. It has a definite diagnostic value when diverticulitis is under suspicion and acts as an exciting cause of, at any rate, the acute manifestations. These have occurred while straining at stool, during the administration of an enema, following a dose of castor oil, jolting in a motor car, following a heavy meal, while lifting a weight, jumping or hunting, while at work, and during an abdominal operation. In this group pain of one kind or another (often recurrent and colicky) and tenderness are very frequent. Tumour formation has been noted in 30 per cent. of the cases, and the tumour is not infrequently and then characteristically variable. Abscess formation is very frequent; consequently fever and leucocytosis are often present. Bladder and pelvic symptoms are not uncommon. Apart from actual fistulous communication with the bladder, which constitutes a separate clinical group, there are frequently symptoms of bladder irritability, probably due to the nearness of inflammatory foci or to actual adhesion. Pelvic symptoms are of some frequency, and sometimes make the clinical picture.

Vesico-colic Fistula and Bladder Symptoms Generally.—In a recent review[7] Bryan has stated that "diverticulitis" is the most frequent cause of sigmo-vesical fistula. Moynihan was the first observer in England to emphasize this fact. He wrote in 1907:

> The formation of a vesico-intestinal fistula seems to be one of the tendencies of a perforated false diverticulum; a search through the literature has shown that it is far more common than was supposed. In cases where a hard growth in the intestine is accompanied by the passage of flatus and faeces by the urethra, a diagnosis of carcinoma seems irresistible; yet the *probability* is that "the growth" would be simple, and that the cause of the fistula would be a false diverticulum, which had burrowed its way through all the coats of the bowel, and thence through the wall of the bladder which had become adherent.

Experience has abundantly confirmed the truth of this statement, and its recognition has been followed by some brilliantly successful cases at Leeds cured by operation after long periods of suffering.

Pelvic Syndromes.—Much has been written in recent years about the close pathologic relationship between the sigmoid flexure and the other pelvic viscera. Much of it has been written without any or a very extensive knowledge of the rôle of the diverticulum. It is therefore not surprising to find diverticulitis increasingly important in the practice of gynaecological surgeons. Pelvic symptoms of one kind or another existed in 7 per cent. of my collected cases, and a number of examples have been placed on record in which the symptoms were entirely pelvic, bowel symptoms being absent. There is no doubt that Shoemaker[8] strikes the right note in saying that in any suspected case of pelvic or utero-ovarian disease a routine and thorough examination of the recto-sigmoidal bowel and its functions is just as important as a vaginal and uterine examination.

Diagnosis.

This can only be made after a careful consideration of all the facts of the case. Inflammatory trouble in the left lower quadrant in a person of middle or advanced age carries with it a strong *prima facie* possibility of a diverticulitis being the cause, but beyond this exact diagnosis is often difficult, and all special aids to diagnosis may have to be requisitioned. These include: (1) The sigmoidoscope, which has been disappointing in the main in this condition, though perhaps some members may have had more fortunate experience; (2) the cystoscope, which has been of particular value in a small number of cases; and (3) examination by *x* rays. This last procedure holds out most promise, and has been greatly developed during the last few years. As may be expected, the technique is not of the easiest, and there are many fallacies in the appearances noted, but there is no doubt of the general diagnostic value.

The outstanding condition calling for differential diagnosis is carcinoma. It may be, and often is, impossible, not only before operation, but at operation. The following summary of the chief points differentiating diverticulitis from carcinoma may be of use.

[7] *Ann. Surg.*, 1916, lxiii, 353.
[8] Ibid., 1914, lix, 422

Summary as to Diagnosis from Carcinoma.

1. The absence of the "shadows of malignancy" from the general picture.
2. Tendency to obesity, and maintenance of good nutrition generally.
3. Long history of attacks of abdominal pain in the left lower quadrant.
4. History of tumour formation with subsequent disappearance.
5. Absence of blood (visible to naked eye) in stools over a prolonged period.
6. Presence of a vesical fistula, in which malignancy can be excluded by cystoscopy.
7. Negative sigmoidoscopy as regards malignant disease.
8. *X*-ray demonstration of diverticula.
9. Pyrexial attacks.
10. Examination of blood, the presence of neutrophilic leucocytosis, and the absence of the specific nuclear changes characteristic of cancer.

In carcinoma of the sigmoid loss of flesh is early, pain and tenderness are late, and are often preceded by tumour.

Certain other conditions which have to be considered in arriving at a differential diagnosis are: (*a*) Sigmoiditis, (*b*) hyperplastic tuberculosis, (*c*) actinomycosis, (*d*) syphilis, (*e*) pelvic conditions generally.

Treatment.

This is comprised in a single word—surgery—unless operative interference is specially contraindicated. As a physician I shall not venture to discuss particular surgical procedure, but confine myself to a few general points.

In view of the potentiality for mischief of diverticula, all diverticulum-bearing gut should be removed. At operation search should be made, whenever possible, for further diverticula. Recurrence after operation has occurred, presumably from neglect of this point. There seems to be a special liability to post-operative peritonitis, possibly due to the chronic infection of the inflamed tissues in some cases.

Care should be taken in handling the gut, as at least one instance has occurred of rupture of a diverticulum by surgical traumatism. The good results already obtained in certain bladder fistulae should stimulate surgeons to deal with such cases. In at least one very successful case the possibility of successful intervention had been negatived by several surgeons of eminence.

Lastly, no case of supposed carcinoma of the lower bowel must in future be regarded as inoperable, either before or at laparotomy, unless diverticulitis has been remembered fully considered and systematically investigated.

DISCUSSION.

Difficulties in Diagnosis.

Sir JOHN BLAND-SUTTON said that thirty years ago colic sacculi were mainly regarded as pathological curiosities and our knowledge of their potentialities for evil was a direct result of surgical enterprise. His interest in them was aroused when trying to find an explanation of the phenomenon known as "spontaneous disappearance of abdominal tumours." This matter was discussed in the Royal Medical and Chirurgical Society in 1894 by Mr. Greig Smith, and increasing experience in abdominal surgery enabled Sir John Bland-Sutton to learn the part played by colic sacculi in producing localized swellings in the belly, which sometimes disappeared by expectant treatment, and the phrase "spontaneous disappearance of abdominal tumours" also disappeared from surgical phraseology when surgeons learnt that acute and chronic diverticulitis, or sacculitis (names as ugly and cacophanous as appendicitis), mimicked many important lesions, especially acute and chronic appendicitis, cholecystitis, tumours of the stomach, subdiaphragmatic abscess, perigastric abscess, splenic abscess, tubal infections, ovarian abscess, cancer of the uterus, and infected uterine fibroids. The extraordinary feature of sacculitis (or pericolitis) was its mimicry of cancer of the colon. In 1901 he excised the sigmoid flexure of a spinster, aged 60, under the impression that it was cancerous. After the operation critical examination of the tumour proved that the supposed cancerous mass was a pericolic mass due to infection of a sacculus caused by a piece of straw. The patient recovered. This, with a case of epiploic abscess, was described before the Medico-Chirurgical Society of Nottingham in 1904, and full details were published in the *Lancet*, 1903, ii, 1148. Since that date Sir John Bland-Sutton had seen and

operated on many similar cases, and it was clear that in the past patients had submitted to colotomy and colostomy under the belief that they were suffering from colic cancer; subsequently the lump disappeared and the patients survived the operation many years, and at death there had been no evidence of tumour. This admitted of no doubt. Also cases were not uncommon in which a swelling was detected in connexion with the large gut; a diagnosis of cancer was made, and the patient was advised to submit to an operation, but he obstinately refused, and in due course the swelling disappeared in spite of the gloomiest prognostications of physicians and surgeons of great experience and repute, and the patient lived to mock at his advisers. The disappearance of the mass was due to pus or the exudate finding a channel of escape. During the last ten years acute diverticulitis, especially in the lower abdomen, had been recognized with the same certainty as acute and chronic appendicitis. The disquieting feature of these new things in abdominal surgery was the fact that as we grew older colic sacculi tended to increase in number, and as many as 200 had been counted on a colon. Thus diverticulitis was a newly discovered "bane of elders." As prevention was better than cure, it would be the duty of the family medical attendant to encourage men and women after middle life to have efficient sets of teeth, and warn them against gobbling indigestible food or bolting hot and unpalatable morsels.

Radiography.

Dr. E. I. SPRIGGS referred to some of the earlier papers on the subject of diverticulitis, amongst others to Dr. Maxwell Telling and Dr. Gruner's monograph, and to the paper published by Dudley Roberts on 22 radiograms of diverticulitis. He then gave the results of a series of a thousand cases radiographed at Duff House. In only six of these had there been *x*-ray evidence of diverticulitis. It had to be borne in mind, however, that radiography would fail to show the presence of diverticula if they did not stand out in profile, but were behind or in front of the main bismuth mass. Again, the bismuth might easily fail to enter the diverticulum if it were filled with faecal material. In his opinion bismuth meals were preferable to bismuth enemata for the demonstration of diverticula. After showing radiograms of the six cases of diverticulitis, including an excellent example of diverticulum of the duodenum, Dr. Spriggs expressed the opinion that the disease was due to weakness of the bowel wall at the regions of greatest internal pressure—namely, towards the termination of the small and the large intestines. The cases he had illustrated were of special interest because they were early cases in which no symptoms had yet appeared.

Surgical Treatment.

Mr. MCADAM ECCLES expressed the opinion that diverticulitis was commoner than was ordinarily supposed. It affected most commonly the large bowel, and was usually multiple. It was by no means rare to find the diverticula running out into masses of fat, or into actual appendices epiploicae. The acute variety of diverticulitis, when occurring in the pelvic colon, might result in suppuration and a condition erroneously termed left-sided appendicitis. He had on several occasions opened abscesses in the left iliac fossa which he had little doubt were due to perforation of diverticula. The chronic form was of great interest in that it simulated carcinoma. The lesion occurred more frequently in men, and after middle life, giving rise to constipation and flatulence. A tumour formed, and then, with some emaciation, nearly every sign and symptom of malignant disease, with the important exception of haemorrhage, was present. The speaker concluded by showing an excellent pathological specimen removed from an old gentleman of 74 in 1913. Resection of a portion of the pelvic colon was performed for what was believed to be a malignant stricture, but turned out to be diverticulitis. The patient was now 80 years old and in good health. A drawing of a calculus lying in a diverticulum was also exhibited.

Mr. GREY TURNER, after mentioning some of the early papers on diverticulitis, described three cases he had encountered in his own experience. The first of these was a lady of 30, whose condition simulated that of appendicitis accompanied by extensive thickening of the caecum. The second was a male admitted for retention of urine. Catheterization had been attempted and had failed. As signs of peritonitis were present the abdomen had been opened and a large mass in the descending colon suggesting carcinoma had been found. A gall stone was lying in Douglas's pouch and fistula had formed between the gall bladder and the duodenum. The case, which proved fatal, on later examination proved to be one of perforation of a diverticulum. The third case was also that of a man who had died from perforation. It had been remarkable in that only two diverticula were present. In the speaker's opinion the condition of diverticulitis was essentially congenital in origin. If the histories of these cases were carefully taken it would be found that as a rule symptoms had been present for some considerable period, often for several years. It was true that sigmoidoscopy had been disappointing, but, on the other hand, a negative finding as regards the presence of malignant disease was suggestive. If instead of a single large bismuth meal several meals were given at short intervals radiography might be still more serviceable. It was all very well to say that surgery was the only remedy, but when the knowledge of the existence of diverticulitis became generally known the surgeons would be overwhelmed. It would be impossible to perform wholesale resections, and it would be necessary to come to an agreement as to what surgical measures were necessary. He had treated one case of diverticulitis by inversion and suture, and so far the result had been satisfactory.

Mr. ROWLAND described eight cases of diverticulitis of the colon and one of diverticulitis of the duodenum upon which he had operated. The complications that had brought them to the theatre were in three instances for peritonitis, and in five for intestinal obstruction. One case simulating carcinoma was unsuitable for resection, and short-circuiting had been performed. For early cases the speaker recommended resection with end-to-end anastomosis. For late cases, and cases complicated by vesico-colic fistula, a preliminary colostomy was advisable. In a few instances some form of short-circuiting operation was indicated.

Misleading Term.

Professor RUTHERFORD MORISON being unable to be present, Mr. HAMILTON DRUMMOND read his paper. In it Professor Morison strongly objected to the term "diverticulitis." It was a misnomer, and was liable to cause confusion between the condition under discussion and the congenital sac termed "Meckel's diverticulum." Normal sacculations must be distinguished from acquired. The acquired sacculations were multiple, had no special blood supply, were found in elderly people, and were common to all hollow viscera. The only similarity between congenital and acquired sacculation lay in the liability to similar complications—gangrene, perforation, etc. The sooner the term "diverticulitis" was replaced by that of "sacculitis" the better it would be.

Morbid Anatomy.

Mr. HAMILTON DRUMMOND then gave the results of his own observations during the course of 500 *post-mortem* examinations of patients who had not died as the result of intestinal lesions. In this series 22 instances of pathological sacculation of the large bowel were found. In four of these a similar condition of the small intestine was present, and in one a diverticulum of the bladder. Careful dissections and microscopical examinations were made, and the results had suggested that the condition was due to a general weakness—perhaps congenital—of the unstriped muscle throughout the body. The presence of venous congestion had been suggested as a cause, but the fact that sacculations were not found in cases dying of morbus cordis did not bear this out. The common site of origin of these sacculations was between the mesocolic and lateral longitudinal bands at the spot where the blood vessels pierced the muscular coat of the bowel. This, like the inguinal canal, was a weak spot. A most excellent series of preparations illustrating the pathological anatomy of the condition was thrown on the screen. It showed the tendency of the sacculations to work backwards towards the mesentery, and the accompanying atrophy of all the coats except the peritoneum.

Appendix Epiploica.

Mr. GARNETT WRIGHT reported a case on which he had operated in 1911. The patient was a male who had suffered for years from gonorrhoea, and had finally developed signs of cystitis and difficulty in micturition. He had been treated by catheterization until his condition had become so bad that further advice had been sought. Faeces were passed by the urethra, and a diagnosis of recto-vesical fistula was made. At operation a single appendix epiploica was found adherent to the posterior surface of the bladder. This was excised and the openings closed. The condition recurred, and at a subsequent operation, in addition to excising the fistulous tract, the sigmoid was anchored down to the iliac fossa. No further trouble had occurred.

WAR METHODS IN CIVIL PRACTICE.

AT a meeting of the Clinical Section of the Royal Society of Medicine, held on January 9th, the President, Sir ANTHONY BOWLBY, gave an address on the application of war methods to civil practice.

Shock.

He said that the most striking danger to the man wounded in war was shock, a condition which was met with in a far higher percentage of men wounded in war than in those correspondingly wounded in the occupations of peace. This was due to the fact that the man injured in war was suffering from want of sleep, want of water and of food; he was exhausted by physical strain and mental excitement; he was often thoroughly chilled after his injury through lying out in the cold, wet, or even freezing weather. His shock was therefore out of proportion to the severity of his wounds. The most important of all the remedies for shock was warmth, and nothing could take its place. Much of the wound shock could be obviated by sufficient care, first in the early application of suitable splints, which should be employed in all severe injuries and not reserved for fracture cases alone; and secondly, by the supply of well hung and well warmed ambulance cars. By these methods the condition of the wounded man was greatly improved during the war, and it would be by the application in civil life of the knowledge that had been gained that a like improvement would be obtained in peace. He had been so convinced of the importance of care in the transport of injured men that, with the aid of the Army Medical Service and of the British Red Cross Society, he had arranged for the equipment with suitable splints of the motor ambulances which had been supplied to various parts of Great Britain, and arrangements were now being made to see that the ambulance drivers and orderlies were as thoroughly trained in the use of the "Thomas outfit" for fractured extremities as were our orderlies at the front in France. In every county arrangements should be made to teach how badly wounded men might be taken even for great distances without further injury being inflicted upon them by the transit.

With regard to the treatment of shock he said that, as the principal phenomena were loss of blood volume and fall of blood pressure, the obvious aim should be to restore these. The simplest method was to administer fluids by the mouth, or, in cases of severe shock when the patient was unable to keep down any fluid, by the rectum. He considered that both blood pressure and blood volume were more likely to be permanently improved by gastric or rectal absorption of fluid than by the intravenous administration of the same quantity. In many cases of severe shock, however, when delay might mean disaster, it was often necessary to perform intravenous infusion as soon as the patient had been warmed and rested. For this normal saline was useless, but Bayliss's solution of 6.0 per cent. gum arabic in normal saline was often of the greatest benefit in raising the blood pressure for long enough to carry the patient over the danger period. In proportion as the shock conditions were due to excessive bleeding immediate infusion of blood was better than gum arabic solution and was undoubtedly indicated; not less than a pint should be given. Sir Anthony Bowlby suggested that in future sterilized gum solutions should be kept ready for use by operating surgeons and by all civil hospitals, and also that test serums for donors of blood should be regularly stocked, so that no delay might arise in the choice of a donor. If such treatment was necessary at all there would be no time to waste; the experience of war had shown that if blood was transfused too late it was quite useless.

Choice of Anaesthetic.

With regard to the choice of an anaesthetic he thought that for all slight operations on patients in good condition "open ether" was often quite satisfactory. In wintry or wet weather, when many of the wounded were suffering from bronchial catarrh, ether was very liable to cause grave pulmonary complications, and it was not until the "Shipway apparatus" for warming the ether vapour was introduced that it could be safely administered in such cases. He strongly advocated that in future warm ether vapour should be systematically employed as the better routine method where ether was used in civil practice; it was not only less irritating to the lungs, but it was less likely to cause severe vomiting. In cases of shock neither ether nor chloroform was safe, for after the operation there was often, with these anaesthetics, a reactionary fall of blood pressure and death. Ether might be very injurious also by causing nausea and vomiting in men who needed every ounce of fluid nourishment that could be given, for if this sickness continued for some hours it would destroy the last chance of recovery for the shocked men. The intrathecal administration of stovaine proved to be very dangerous owing to the sudden fall of blood pressure which it produced to the shocked man, and it was not so good as novocain. The value of nitrous oxide and oxygen in shock had been conclusively proved by Major Geoffrey Marshall in 1916, and his observations showed that extensive operations could be performed without any immediate or subsequent fall of blood pressure. He believed that the combination of gas and oxygen with local anaesthesia was the very best anaesthetic agent for a number of the abdominal operations of civil life and for many others also, for it caused no fall of blood pressure, it eliminated anaesthetic shock, and it abolished post-anaesthetic vomiting and all its attendant troubles. He urged that gas and oxygen should be supplied, together with suitable apparatus for all the army medical services in the future. It was not always a satisfactory anaesthetic, however, for vigorous and muscular people on whom a prolonged operation was to be done; its administration was lengthy, and required both experience and a special apparatus.

Treatment of Fractures.

The fractures in France during the last half of the war were treated by "extension and suspension," so that the circulation and mobility of the injured limb were maintained throughout as far as possible, and wasting of muscles and stiffness of joints had been thereby largely prevented. All hospitals and medical schools should arrange for much more systematic teaching of how to deal with fractured limbs, so that all young surgeons would in future realize that the so-called "setting" of the fracture was the beginning and not the end of surgical treatment. It would be necessary, therefore, for some at least of the fracture cases in general hospitals to be collected in "special fracture wards" equipped with the necessary apparatus for "extension and suspension," and supplied also with a mobile *x*-ray outfit, for there were many cases where a good result could only be obtained by frequent radiography.

Wound Infections.

Tetanus was prevented by prophylactic injections so successfully that its incidence immediately fell 90 per cent. as soon as the antitoxin could be supplied in sufficient quantities. If success were to be obtained in civil practice, it must be remembered that the injections should be given within a few hours of injury. No similar success had followed the employment of prophylactic injections for "gas gangrene," but time and experience had shown that the proper treatment was the excision of all devitalized tissue, and the careful and thorough mechanical cleansing of the wound. Lister had realized the uselessness of attempting to sterilize a grossly infected wound by the single application of a powerful chemical agent. After thorough cleansing, the wound was closed by "primary" or by "delayed primary" suture. The

results of suture were not materially influenced by the use of any antiseptic agent, and it was found that wounds could heal well and firmly even though they contained considerable numbers of micro-organisms so long as the latter did not include virulent streptococci. It was evident that tissue cells could destroy the less virulent bacteria provided the latter were surrounded by healthy living tissues, and by closure of the wound the advent of fresh infection was effectually prevented. Not only were many lives and limbs saved by wound closure, but compound fractures healed more rapidly and with much less necrosis, joints were saved from acute arthritis, suppuration of wounds became rare, septic infection with its fever and emaciation diminished, and convalescence was infinitely more rapid. He believed that there was a wide field for the application of war methods to the treatment of the injuries of civil life, but he wished to emphasize that in suturing wounds after the interval of a day or two, it was essential for success to recognize that no further wound toilet was permissible. The packing should be removed as gently as possible, and the sutures inserted and tied.

It was found that not more than 15 per cent. of recent wounds were infected by haemolytic streptococci when examined at the operating theatres or the casualty clearing stations at the front, but bacteriologists at the different bases said that within a week of arrival there over 90 per cent. were infected. Shortly before the war ended an Anglo-American Committee was appointed to investigate the whole question of streptococcal infection. Complete sterilization of hands and instruments after each examination was obviously difficult when the wounded were numbered by the thousand, but instruments being more easily sterilized than the hands it was clearly desirable that the wound or dressing should only be touched by instruments. An investigation was made to ascertain whether many of the medical officers, nurses, or orderlies at the bases were acting as carriers, and 8,000 examinations were made in the American army of their throats, with the result that it was reported at the last meeting of the committee that carriers of haemolytic streptococci had been found at different bases to number from 15 to 25 per cent. of all the hospital personnel. Experience of the general hospitals in France showed the danger of wound infection spreading when large numbers of streptococcal infected wounds were accumulated under war conditions, and explained why the closure of wounds by suture was of such great benefit to the wounded soldier. He suggested that these investigations already begun were worth pursuing in hospital wards given over to the treatment of cellulitis and erysipelas. With regard to the treatment of suppurating wounds two things had been learnt: First, that it was more often possible to suture than was thought; and, secondly, that Carrel's method was often a very great improvement on the drainage tube and the daily syringing. Concerning the first, it was found that many wounds could be successfully sutured even if they were suppurating. Speaking of the second, he said that he believed that where surgeons had had an unsatisfactory experience of Carrel's method this had been largely due to imperfect technique. He considered that the method of irrigation was more important than the particular solution. In civil surgery it was as efficacious in the treatment of an empyema or pelvic suppuration. He had seen excellent results from its use in large appendix abscesses and in suppurating joints. In future he had no doubt that the civilian surgeon would work even more with the bacteriologist than he did before the war, for it had been by collaboration and experiment that many of our advances had been maintained without risk to the patients.

Mr. REGINALD VICK said that he had had an opportunity in Salonica of practising primary suture on compound fractures for a period of eighteen months while at a general hospital on the Seres road, to which large numbers of transport accidents were admitted. The invariable practice was to do primary suture on these cases, and the results were so uniformly satisfactory as to convince him that this method of treatment was as ideal as anything human could be and as successful. The essentials for success were present: facilities for immediate treatment, a good theatre, and no reason for moving the patient until the wound and bones were healed. Since his return to England he had had the opportunity, while working under Mr. Gask in a surgical unit, of treating all compound fractures admitted during their tour of duty. Primary suture had been performed in these cases, and, where complete closure of the wound was impossible, secondary suture had usually been required at a later stage. In cases of compound fracture of the skull with the dura unopened the end results were excellent. It was important that operation should be performed at once, with complete removal of *all* damaged tissue, and perfect splinting, with subsequent immobility until healing was complete in cases of fractures of long bones. He had usually used ether in the final stages before closing the wound.

Sir CUTHBERT WALLACE remarked upon the difficulty in applying the Thomas splint in the case of women on account of their clothing. In fractures in civil life there was much more extensive injury to surrounding tissues than occurred in fractures under war conditions.

Mr. W. GIRLING BALL said that much had been done during the war in the bacteriological examination of wounds. In a series of 100 cases at the front treated by delayed primary suture, 80 per cent. healed by first intention. Since his return he had endeavoured to carry out the same method of treatment. In the home hospitals cases were too often left to the inexperienced for treatment. This was difficult to avoid unless the house-surgeon had been taught by someone who had actually carried out the method. He thought that large wounds such as were so often met with in civil practice were very amenable to treatment by primary suture.

Sir CHARTERS SYMONDS said that he had begun his war work in London, where men were arriving from the Aisne in a highly infected condition. In the case of severe fractures he kept the part in complete rest by putting it up in plaster-of-Paris. When the general inflammation had subsided, in from four to seven days, he removed the plaster. The wounds were generally found full of pus, but this seemed to act as an effective dressing. In the summer of 1916 he had employed first continuous, and later intermittent, irrigation. On his return to England he saw the cases from France and noted the excellent results which followed primary suture. If the wounds were dry and free from pus, it was possible to suture at once. He agreed that failure in the Carrel-Dakin method was due to defective technique. Asepsis should be perfect and the wound should never be touched by the hands.

Mr. A. SHEEN said that in India cases had been received from Mesopotamia ten days after wounding. The wounds did not seem to be so infected as those in France, probably on account of the dryness of the climate and the non-cultivation of the soil. Improvements were needed in organization as well as in treatment. In mines, works, and factories, there was little organization for immediate treatment.

Reviews.

THREE CAMPAIGNS.

SIR ALEXANDER OGSTON'S *Reminiscences of Three Campaigns*[1] appears at the request of friends who knew that he had kept journals of his experiences in the Egyptian, South African, and European wars. After the fall of Khartoum the autobiographer left London on February 25th, 1885, and was present at the battle of Tamai. He was invalided home on April 15th with a desire to do something to assist the Army Medical Service, and in 1899, in the course of the address in surgery at the British Medical Association at Portsmouth, delivered "a heavy indictment of the system on which our services were then conducted." Soon afterwards he volunteered to go to South Africa; with Queen Victoria's support he overcame the impediments placed in his way and left England in December, 1899. After various experiences, including typhoid fever at Bloemfontein, he was again invalided, and reached England on July 27th, 1900. There is an interesting

[1] *Reminiscences of Three Campaigns.* By Sir Alexander Ogston, K.C.V.O., LL.D., Surgeon in Ordinary to the King in Scotland. London: Hodder and Stoughton. 1919. (Demy 8vo, pp. viii + 335; 6 figures. 16s. net.)

account of his delirium, describing the separation of mind and body and his wanderings through "silent fields of Asphodel."

The third section, on Serbia (1915), is shorter and of relatively much less interest than the fourth, which relates the author's experience in Italy; he arrived at the head quarters of the British Red Cross Ambulance in August, 1916, and when surgical work was not pressing made several trips in different directions, so that he traversed nearly the whole of the Italian front. Like all others who visited the mountain lines, he is enthusiastic in praise of the wonders achieved by the Italian engineers, and he speaks well of the way in which the officers of the Italian Medical Corps made efficient ambulance stations and advanced operation contres on unpromising sites and under circumstances of great difficulty. Sometimes they had to rely on their own enterprise and ingenuity; sometimes they were helped by the engineers as in what Sir Alexander says must have been the strangest field hospital in the world, about a mile to the south of Plava.

> There the cliffs of friable limestone on the roadside had been drilled by an electric (?) drill, or scooped out, until a cave six or seven feet broad and forty or fifty in length was formed, so as to run parallel to the roadway; it was lined with bunks like those in a steamer's cabins, in tiers about ten feet high along one side; it was lit by acetylene, and in cold weather warmed by hot-water pipes. One chamber served for an operation theatre, and the drill was at work preparing a larger and better one. It was quite dry and comfortable.

The book, however, is much more than a record of observations and opinions on medical matters; the indomitable energy of the Emeritus Professor of Surgery in the University of Aberdeen, whose portrait forms the frontispiece, led him in the interval of his strictly medical duties to contrive to see a good deal of the actual military operations in all the three campaigns. He has provided some good illustrations, a map of South Africa, and a bird's-eye view of the Italian Isonzo front.

THE PERIPHERAL NERVES.

THE last piece of work done by the late Professor MELVILLE PATERSON, of Liverpool, was to prepare a book entitled *The Anatomy of the Peripheral Nerves*.[2] His object was to provide a brief account of these nerves for the use of students and surgeons, particularly those engaged in military orthopaedic work. He included an account of the cranial nerves, and of the sympathetic, because of its intimate relation with the peripheral nervous system. The book is divided into four chapters, dealing respectively with the anatomy of the peripheral nerves, the distribution of the spinal nerves, the sympathetic system, and the cranial nerves. It contains a number of illustrations, most of which are very good, though some contain so much detail as to be rather bewildering. The schemes giving the positions of origin of the branches of the limb nerves have been compiled from dissections made by Mr. D. H. Richards; others are borrowed from Cunningham's *Textbook of Anatomy*. Professor Paterson gave a warning with regard to the precise point of origin of any branch of a limb nerve, pointing out that it may be incorporated with the parent trunk for a different distance in different cases. The book will not, of course, enable surgeons to dispense with the larger volumes on anatomy and neurology, but as a summary of anatomical facts it will often be of great use for rapid reference.

TYPHOID FEVER.

THE amount of work dealing with various aspects of typhoid and paratyphoid infections which has been published during the past twenty years is so great that it is difficult for the non-specialist medical reader to keep abreast of the stream. There is an effective demand for a summarizing treatise dealing with the subject as a whole, and Professor GAY of California was well advised to attempt to meet the demand in a volume entitled *Typhoid Fever*.[3] In it he has brought together within the compass of less than 300 pages a great deal of information the value of which is enhanced by an extensive bibliography. Professor Gay's expert knowledge of laboratory methods enables him to explain clearly the very difficult problems arising in connexion with the study of immunity. His observations respecting the difference between the durable immunity due to passage through a natural attack of the disease and the more transitory consequences of vaccination are of interest. The suggestion made is that the former is a cellular and the latter a humoral immunity, and that the possible existence of cellular antibodies in the tissues of those who have passed through a natural attack needs consideration.

It is, however, to be remarked that the exact measure of the protection conferred by an attack of typhoid fever is still to be determined. That second attacks are uncommon does not prove nor even create a strong presumption in favour of immunity. What is needed is a comparison of the incidence of typhoid upon persons of the same age, some of whom had, and others had not, been previously attacked, allowance being made for the differential death rate, since the proportion of persons aged 20 attacked by typhoid fever who will survive to age 21 will probably be smaller than the proportion of those of the same age not attacked. The statistical problem is very complex, and there are the further practical difficulties of securing a materially accurate record. We mention the point since Professor Gay's work is less adequate with respect to statistical and epidemiological questions than in other respects.

To summarize so much and still to retain a pleasing literary form is a task for a giant, and it would not be true to say that Professor Gay's book is altogether easy reading. But its practical value is great, and the author has put many medical men under an obligation to him.

[2] *Anatomy of the Peripheral Nerves.* By Professor A. Melville Paterson, M.D., F.R.C.S. London: H. Frowde, and Hodder and Stoughton. 1919. (Demy 8vo, pp xi + 165; 64 figures. 12s. 6d. net.)

[3] *Typhoid Fever.* By Frederick P. Gay. New York: The Macmillan Co. 1918. (Med. 8vo, pp. xi+286. 12s. 6d. net.)

NOTES ON BOOKS.

THE new number of *Medical Science: Abstracts and Reviews*[4] gives a good deal of space to reviews of recent publications on tuberculosis and syphilis. Under the former head reference is made to scepticism as to the specific properties of tuberculin, a scepticism almost as old as tuberculin itself. The investigations made during the last few years by Schmidt and Kraus at the German medical clinic at Prague appear to show that injection of milk evokes responses closely resembling those produced by tuberculin. The injections are made every three or four days for three weeks; the milk is sterilized by boiling in a water-bath for ten minutes; if it causes excessive pain when injected hypodermically it is injected into the muscles. Reference is made in the same article to Abbott's recommendation to treat broken down tuberculous glands by aspiration, the cavity being then filled with cinnamon 1 part, benzoin 3 parts, and corn starch 10 parts, insufflated through a tube if possible, but, if not, mixed with a little water and injected. Among the surgical papers is one on prostatectomy, giving a history of the subject, with notes on methods at present in use.

Condensed milk, apparently first invented by Newton, and in a modified form first used for infant feeding by Liebig in 1867, has been more and more employed for the latter purpose during the last two or three decades. A careful study of its manufacture, composition, and value in the feeding of infants and invalids has recently been published by Dr. LASSABLIÈRE.[5] The book is short, but gives a satisfactory account of the subject so far as it goes. The author is under no misapprehension as to the limitations of infant feeding by condensed milk; as Professor Richet says in his preface to the work, for infants all diets except breast-feeding are detestable; all foods but mother's milk are sufficiently villainous drugs.

The second edition of Colonel KEEFER'S *Elementary Military Hygiene and Sanitation*[6] contains an account of the subject useful to soldiers and sailors alike. It is short, clearly written, and well provided with illustrations. It may be recommended to all in search of a manual of field hygiene.

[4] Annual subscription, 21s.; a single number, 2s.

[5] *Le Lait Condensé.* By Dr. P. Lassablière, Chef de Laboratoire à la Faculté de Médecine de Paris. Paris: A. Maloine et Fils. 1919. (Cr. 8vo, pp. 108.)

[6] *A Textbook of Elementary Military Hygiene and Sanitation.* By Frank R. Keefer, A.M., M.D., Colonel Medical Corps, United States Army. Second edition, reset. Philadelphia and London: W. B. Saunders Co. (Post 8vo, pp. 340; 55 figures. 7s. 6d. net.)

While it is not the province of a medical journal to accept or deny the conclusions reached by Mr. HUGH ELLIOT in his philosophical essay (or series of essays) entitled *Modern Science and Materialism*,[7] we may be allowed to compliment him upon his rare lucidity of exposition, upon the range of his knowledge in diverse fields of science, and upon the steadiness of his grasp as he takes up one after another aspect of the universe and examines it by the clear cold light of reason. If the first 209 pages should seem rather bloodless and destructive, the reader will perhaps find some slight comfort in the last two paragraphs of the concluding chapter headed "Idealism." "Let us see to it then above all other things," says the author here, "that our philosophy of life is true. Passion is the master: Faith and Reason will for ever regulate the conduct of mankind." After all that has gone before these words may come as a surprise. Yet, despite the note on which he ends, some who have followed unwillingly the author's remorseless argument for a wholly materialistic concept of the world within and of the world without may feel disposed to deny that "there is grandeur in this view of life." The last quotation, we should add, is not from the book under review, but from the final sentence of the *Origin of Species*. But we would not be misunderstood: this work contains a challenge that will be relished by strong minds.

To review Dr. S. GANGI'S massive compilation on heatstroke[8] in mid-winter may be held to argue a certain lack of sensitiveness, or even propriety, in the reviewer so far as times and seasons are concerned. This, however, is not really the case; the book, though published as long ago as 1915, has only recently come to hand, and so demands instant attention. The subject is one with regard to which scientific clinical observation and scientific histopathological investigation are still urgently called for. Captain Gangi's pages show that isolated observations of interest and theoretical speculations of less interest than ingenuity abound in the literature of heatstroke. But it is not yet possible to set out any clear picture of the mechanism whereby heatstroke arises, or of the histology of its often recorded morbid anatomy, or of the avenues along which its treatment on truly scientific lines should be approached. The book is full of quotations from other authors, many of them British, and should be of interest to medical men in hot countries. It contains an ample bibliography.

[7] *Modern Science and Materialism*. By H. Elliot. London, New York, Bombay, Calcutta, and Madras: Longmans, Green and Co. 1919. (Demy 8vo, pp. 211. 7s. 6d.)
[8] *Il Colpo di Calore*. By Dr. Salvatore Gangi, Capitano Medico. Catania: Officina Tipografica V. Giannotta. 1915. (Roy. 8vo, pp. 293.)

TESTS OF CURE IN VENEREAL DISEASE.

THE Ministry of Health has issued a memorandum containing suggestions as to the tests which should be applied before patients who have been under treatment for syphilis or gonorrhoea are regarded as cured and "discharged after completion of treatment and observation." Attached to the memorandum is a form (V.R. 6) for the annual return rendered by all the venereal treatment centres. The documents are accompanied by two covering letters—one addressed to medical officers in charge of venereal disease treatment centres, and the other to county councils, county borough councils, and the authorities of approved treatment centres.

The Memorandum (V. 21) contains matter of special interest, and we welcome the fact that the Ministry of Health is drawing attention to the importance of subjecting those who have suffered from venereal disease to certain definite tests before discharging them as cured. Venereal disease is being spread at the present time by thousands of individuals who believe themselves to be free from infection merely because they are free from symptoms. In many instances, it is true, these men and women have not taken the trouble to obtain medical sanction before returning to their ordinary mode of life. This, however, is by no means always the case. A great many of these contaminators of society, when reproached for their want of consideration to others, will indignantly reply that they had been examined by their doctor and told that they were free from disease. Anything, therefore, which assists in drawing the attention of the profession to this state of affairs and to the importance of employing stringent bacteriological and chemical tests before discharging such patients as cured is thrice welcome.

Gonorrhoea.

It is unfortunate that, although the gravity of syphilis is generally realized, infection with gonorrhoea is still regarded by perhaps the majority of mankind as a trivial complaint. Yet at the present moment it is gonorrhoea and its sequelae rather than syphilis that constitute the greater danger to the national health. No exact figures are available, but it would be no exaggeration to say that 40 per cent. of the patients attending the gynaecological out-patient departments of our hospitals are suffering from gonorrhoea or from the legacies it leaves. Moreover, it is with gonorrhoea rather than with syphilis that the greater difficulty is found in establishing trustworthy tests of cure. Latent gonorrhoea is no easy matter to detect, and it is only by the conscientious employment of the most exact bacteriological tests that anything approaching accuracy can be obtained. The Wassermann reaction is a more delicate test in syphilis than any available for the detection of latent gonorrhoea, for up to the present the complement fixation test in the latter has proved only of limited value.

The Memorandum circulated by the Ministry of Health has been based on suggestions made to it by various medical officers in charge of venereal disease treatment centres as well as by the Medical Committee of the National Council for Combating Venereal Disease. The examination advised is both bacteriological and clinical. Included in the latter is a careful search by means of the urethroscope for signs of disease in the urethral walls. Whilst under examination the patient resumes his ordinary mode of life, sexual abstinence alone being exacted. On three separate occasions, at intervals of a week, the patient comes up for the test. Films are prepared from any moisture obtainable from the urethra, from secretions expressed from the prostate and seminal vesicles, and from the centrifugalized urine. On at least one occasion the examination of films is supplemented by the taking of cultures, and when possible a complement fixation test is performed on the serum. In order to provoke a urethral discharge the patient is encouraged to resume his usual habits as regards alcoholic stimulants, pickles, curries, spices, and so forth. For the same purpose full-sized bougies are passed, instillations of silver nitrate made, or a provocative injection of gonococcal vaccine given. If the results of all these tests are negative, the patient is provisionally discharged as cured, but is warned to return should he subsequently notice anything of a suspicious nature.

The difficulty of being certain that a cure has been effected is even greater in the case of the female than in that of the male. The tests are in this case most profitably made immediately before or after the menstrual period. Provocative treatment is carried out by the application of silver nitrate solution (15 per cent.) to the cervical canal, or by the use of injections of vaccine. Films and cultures are prepared from the cervical canal and the urethra. The additional use of culture methods is in the case of the female essential, owing to the difficulties of finding the gonococcus in films. Whenever possible the complement fixation test should likewise be employed.

Syphilis.

When dealing with patients who have suffered from syphilis the time factor is of great importance. When more than four years have elapsed since the original infection the risk of conveying the disease to another individual is minimal. The routine recommended in the Memorandum is that until this period has elapsed the patient should report for examination at intervals of one month during the first year and of three months during the second. The examination includes the application of the Wassermann reaction, and the routine inspection of all surfaces of the skin and mucous membrane. At the end of the first and second years of this course of probation a small provocative dose of an arseno-benzol compound is administered, the Wassermann test being performed a week later. If four years have elapsed since infection the patient is regarded for all practical purposes as non-infectious. He is advised, however, in his own interest, to continue under observation until it becomes reasonably probable that the disease has been eradicated.

Copies of the memorandum can be obtained on application to the Venereal Diseases Department, Ministry of Health, Whitehall, S.W.1.

British Medical Journal.

SATURDAY, JANUARY 17TH, 1920.

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND.

AN Association of Surgeons of Great Britain and Ireland was formally constituted on January 8th at a meeting at the Royal College of Surgeons of England, over which Sir Rickman Godlee presided. The suggestion to establish such a society originated with Sir Berkeley Moynihan, who, after some preliminary conversations, addressed a letter to Sir Rickman Godlee, then President of the Royal College of Surgeons, on March 30th, 1914. A meeting of surgeons was held at the Royal College of Surgeons of England on the 26th of the following May, and the suggestion to form a society of the kind was generally approved. It was felt that there had never been the debates on surgery and the freedom of debate which was needed. Not to put too fine a point upon the matter, "freedom of debate" means absence not of criticism but of reporters; it is easy, when the meeting is tiled, to criticize boldly and directly; the tone of the speaker, the attitude of the audience, and the atmosphere of comradeship draw the sting which the same words in the solemnity of print might convey. Opportunity for such outspoken debates has hitherto been scanty, nor has there been any ready means of communication between surgeons on hospital staffs; they have lived a life of too great isolation, comparing themselves too little with other men also actively engaged in surgical practice, and knowing neither the character nor the methods of their fellows.

The establishment of the Association of Surgeons will, it is confidently hoped, raise the standard of the practice of surgery. Its annual meetings in various cities will bring together the active surgeons of England, Wales, Scotland, and Ireland. There they will study the work of the surgeons of that medical school; and the effect of having to operate before a large audience, which if sympathetic to difficulties will be critical of methods, must be to impel the operators to take care that their work shall be good enough to satisfy their critics—in fact, first rate. Some years before the war a little chirurgical club, founded by Sir Berkeley Moynihan, paid visits two or three times a year to various centres. The effect on hosts and guests alike was admirable. In the words of one of its members, "When you see an expert doing his own work exceedingly well, you find it impossible to be satisfied with doing your own work indifferently." The success of this informal experiment naturally encouraged those who had in mind an association of active hospital surgeons, in London as well as the provinces, to persevere, and with the return of conditions of peace the opportunity came.

At the meeting in May, 1914, a committee was appointed to draw up rules for the proposed association and to communicate with members of the surgical staff of teaching hospitals; the intention then was to summon a meeting of those who responded, but the outbreak of war caused the project to be put on the shelf. The interval, however, was not altogether wasted, for the draft rules were at various times revised, and were brought before the meeting last week in a form which enabled them to be adopted as the constitution of the new association. Its objects are defined to be "the advancement of the science and art of surgery, and the promotion of intercourse and friendship among the surgeons of the United Kingdom." The two principles underlying the rules are, first, that the fellows of the new association should be actively engaged in practice and limited in number, and, secondly, that discussions at the meeting should be free. It was decided to limit the number of fellows to 250, and that they should all be engaged in purely surgical practice, in the teaching of surgery, or in surgical research. On ceasing to be a member of the staff of his hospital the fellow would become a senior fellow, enjoying the privileges but not exercising the rights of active fellows; that is, he would not vote nor be eligible to hold office, and would not be required to pay any subscription. In addition it was determined to elect a certain number of honorary fellows from among the eminent surgeons outside Great Britain and Ireland, the number not to exceed twenty-five. It was decided that the president should hold office for one year and be ineligible for re-election; and that the secretary and treasurer should hold office for one year, but be eligible for re-election. The business of the association will be conducted by a council consisting of twelve members in addition to the officers already mentioned. Each division of the United Kingdom must be represented on the council, and not more than four members of the Council may be resident in any one town.

Sir John Bland-Sutton was elected the first president and Mr. Herbert Pendlebury secretary. A general meeting of the association will be held once a year, in May, in towns in any part of the United Kingdom where there is a university or medical school. It was arranged that the first meeting, and subsequently at least every third meeting, should be held in London. To carry out the second principle, it has been enacted that scientific communications shall be spoken, not read, that no communication shall last for more than fifteen minutes, that no reporters shall be present, and that no report of the meetings shall be sent to the journals or newspapers. A fellow will be at liberty to publish his communication when and where he pleases. *The British Journal of Surgery*, hitherto managed by a committee of surgeons, will be taken over by the association, and receipt of this journal will be included among the privileges of each active member, who will subscribe three guineas a year. There is also an entrance fee of three guineas. A rule, interesting as showing the spirit in which the association has been founded, is that an active fellow absent from three consecutive general meetings thereby ceases to be a member, though the council may on receiving a satisfactory explanation reinstate him. The rules provide for the appointment of a local secretary to be responsible for the local arrangements needful for the ensuing general meeting; he is to be elected not later than six months before the date of meeting by the members of the association resident in the town where the meeting is to be held.

The new association appears to be constituted on lines closely resembling those of the Association of Physicians and Surgeons of Great Britain and Ireland, which was established twelve years ago largely through the influence of Sir William Osler. It publishes a *Quarterly Journal of Medicine*, does not permit its proceedings to be reported, but publishes brief minutes in its journal. Its meetings have been exceedingly interesting and useful, and the privilege of attending them is highly prized. We can wish the Association of Surgeons nothing better than to attain an equal success.

PENETRATING WOUNDS OF THE CHEST.

AMONG the subjects discussed at the Clinical Meeting of the British Medical Association last April that of penetrating wounds of the chest aroused great interest, because it showed that in what is almost a new surgical field advances had been made during the war which may well prove to be of great value in civilian practice. A statistical report issued recently by the Medical Research Committee,[1] in which some of the surgical results obtained in France are collated and summarized, is therefore of more than passing value, for, in addition to the statistics there tabulated and now made available for general reference, indications for surgical interference are clearly enunciated and the limitations of active treatment are defined.

Though the credit for first advocating systematic surgical treatment of chest wounds by operation must be ascribed to the French surgeons, and notably Duval and his immediate colleagues, the methods advocated were probably more generally accepted and received wider application in the British armies, largely owing to the pioneer work of Gask, Gray, and Lockwood. There was, perhaps, at first a tendency for zeal to outrun discretion, as is apt to happen when a new method employed by an expert with due consideration of all the factors involved is hailed by the many as an essential practice in all cases. The first six months of 1917 saw this swing of the pendulum—from expectant treatment, which had been almost the universal rule, to an enthusiasm for interference not always according to knowledge. This fault was quickly corrected as experience grew; the Memorandum drawn up at a meeting of Consulting Physicians and Surgeons, and issued by the Director-General in July, 1917, laid down clearly the types of case in which operation was indicated as a routine measure. As this memorandum, which outlined the principles governing the surgery of the chest wound, remained in force for the remainder of the war, its main recommendations will be read with interest. They were as follows: "(1) An open pneumothorax should be temporarily closed by suture at the earliest opportunity, either at the field ambulance or at the casualty clearing station. If for any reason suturing is impossible, the wound should be packed and strapped, so as to render it airtight. (2) Extensive parietal wounds, including the above, should be treated as any other large wound. The operation should include the removal of comminuted rib fragments. (3) Where a foreign body is retained, and careful *x*-ray localization shows it to be accessible and of large size (not a small fragment or bullet), it may be removed, and the parietes closed after evacuation of the haemothorax. (4) Aspiration should be done in the case of any large haemothorax associated with persistent respiratory distress. This is best done after the lapse of about forty-eight hours. (5) Gross infections of the pleural cavity should be treated by rib resection and drainage. Where the infection is mild it is justifiable to resect, thoroughly cleanse the cavity, and close the pleura and parietes, as secondary drainage can easily be established later if necessary. (6) Set operations, for removal of foreign bodies, etc., should not be performed until the initial collapse has passed off. (7) Whenever the thorax is opened for operation the opportunity should be taken to close any wound of the diaphragm. This is especially important on the left side in order to prevent subsequent hernia. (8) Where open operations have been performed the case should be retained for ten days after the operation. (9) Reliable *x*-ray plant, and also immediate access to a bacteriological laboratory, are essential to successful chest surgery."

The first section of the report now issued deals with statistics of 600 cases furnished by Major W. L. Mann, C.A.M.C., and is of great value because he personally treated each case and followed it up from the records of the base and home hospitals. The results he obtained were admitted to be strikingly good and may be accepted as indicating a standard of what sound judgement and skilled surgery in combination can effect. The second section deals with a large series of cases which occurred in the autumn fighting of 1917, on the Passchendaele Ridge. The investigation was undertaken to determine the total mortality from chest wounds and to ascertain statistically the result of operation as contrasted with expectant treatment. Colonel Soltau collected the records of 3,521 cases in the Army area, and as most of the cases were transferred to the Boulogne and Etaples bases, Colonel Elliott was able to trace their after-history there. At the time when this investigation was undertaken the principles of chest surgery were firmly established, and, owing to the circumstance that casualty clearing stations were stationary, could be employed to the full. In consequence, however, of the bad weather and of the great depth of the crater-zone across which casualties had to be conveyed the severity of the wounds was considerably aggravated.

It is inevitable that the mortality of chest wounds should be high, for the structural damage likely to be sustained is severe and the liability to infection of the pleural cavity great. In field ambulances the death rate was 7 per cent. and was entirely due to gross damage. In the casualty clearing stations it was 17.18 per cent. in this series, which, after deduction of the 7 per cent. who died in the field ambulance, would give 15.9 deaths in the remaining 93 cases. Of these about one-third were caused by sepsis, the remainder were due to structural injuries or shock At the base the death rate was 6 per cent. of admissions, which would give 4.6 deaths on the 77 survivors from the original 100. This death rate was entirely due to sepsis. Hence the total mortality at this period was 27.5 per cent. (at the field ambulance 7 per cent., at the casualty clearing stations 15.9 per cent., and at the base 4.6 per cent.).

In the total of 3,521 cases about 38 per cent. were operated on, and this figure may be taken as representing fairly accurately the proportionate number of cases actually requiring operation in war. The tables show in detail the scope of the operation performed, the mortality, and the end result until transit to England. The third section deals with a series of tables compiled at the bases by Colonel Pasteur and Colonel Elliott during the autumn of 1918, when the condition of warfare had altered from close to open fighting, and the fourth section contains tables comparing the results in 1916, 1917, and 1918.

The practice of operating on chest wounds was introduced with the two-fold object of reducing sepsis and of saving life where gross damage was so considerable as to render recovery impossible or unlikely if no assistance were given. It was quickly seen that to operate merely because a foreign body was present was not necessarily justifiable, since so many cases recovered completely with fragments retained. How far were the two objects attained? To argue entirely from figures is fallacious, but to ignore their lessons is foolish. Statistically, sepsis does not appear to have been materially reduced, and it is probable that, on

[1] Medical Research Committee, Statistical Reports, No. 5. Statistical Reports from the British Forces in France on Penetrating Wounds of the Chest. H.M. Stationery Office, through any bookseller, 1s. 6d. net.

the whole, infection of the wounded chest is not obviated by early operation. On the other hand, it is certain that many lives were saved by operating: more particularly in case of open pneumothorax, the "stove-in" chest, and a wound with multiple comminution of ribs. In the early years of the war these cases almost invariably died, whilst in 1917 over 50 per cent. survived when operated on.

The war has taught us certain broad principles of chest surgery. We have learnt that the thorax may be opened with comparative impunity, and without the necessity for special pressure chambers and other devices to prevent collapse of the lung. The technique has been simplified so that few special instruments are required, and the resection of four inches of one rib has been shown to be sufficient to give access to any part of the pleural cavity. It has been shown, too, that in injuries causing an open pneumothorax or extensive rib injury operation is essential. Many lessons as to the treatment of the infected pleura have been learnt, not the least important being that infection with organisms other than streptococci may often be satisfactorily treated by repeated aspiration, or by opening, cleansing, and then closing the cavity and trusting to subsequent aspiration. This should have an important bearing on the treatment of empyemata, where the slow progress to recovery under drainage, and the resulting lack of expansion, are so frequently a source of anxiety and disappointment. Finally, the results of operating for the late results of infection are full of promise for the future. The operative methods introduced by Tuffier to deal with a collapsed lung bound down by adhesions and thickened pleura have in his hands resulted in restoration to function of a completely useless lung, and may be expected to fructify in a rich harvest of brilliant results.

In civil practice a careful application of these lessons will lead to increasing enterprise in dealing surgically with intrathoracic conditions, whilst the military surgeon of the future will find the procedure he must follow firmly established, thanks to the pioneer work of the French and British surgeons in the war. The Statistical Record, evidently compiled with great care by officers with an unrivalled opportunity for collecting figures, and for drawing inferences from them, and also for observation of the actual work performed, will be a valuable guide for the future; and the Medical Research Committee has in it produced a work of lasting utility.

THE NEEDS OF THE VENEREAL CLINIC.

MUCH has lately been written on the duty of the medical profession to impress upon the public the importance of the prevention of venereal disease. In the dust of controversy the other duty of the medical profession has, perhaps, been a little obscured—the duty to treat efficiently to a conclusion those cases of venereal disease which neither chemical prophylaxis nor education and moral suasion have availed to prevent. The documents on treatment issued by the Ministry of Health appear at an opportune moment and include an excellent memorandum (an analysis of which is published at p. 89) containing suggestions as to the tests that ought to be applied before patients who have been under treatment for syphilis or gonorrhoea are regarded and classified as "discharged after completion of treatment and observation." The primary purpose of the memorandum is indicated in its title, and the difficulties in the way of certainly determining when the individual has ceased to be infective are not minimized.

If this work, so vitally important to national health, is to be efficiently carried out, every facility for doing it thoroughly must be given to medical officers in charge of treatment centres. The ordinary routine treatment of the crowds of patients attending these centres has already taxed their resources severely. The number of men and women applying for treatment is increasing every month, yet many of these clinics are attempting to carry on their work in premises that have long become inadequate, and with a staff that is quite insufficient. The elaborate and difficult technique required for the conduct of the necessary tests will severely strain the pathological resources of the clinics. All who have worked at this subject agree as to the importance of bacteriology in the diagnosis and treatment of venereal disease; in no branch of medicine or surgery is the practitioner more dependent on the results of the bacteriologist's investigations than in dealing with gonorrhoea and syphilis. For this reason we would strongly urge the vital necessity of providing both experienced bacteriologists and properly equipped laboratories in connexion with venereal disease clinics. The technique of venereal bacteriology is difficult in the extreme, and if trustworthy results are to be obtained, highly trained and adequately paid workers will be needed. On the result of what we still docilely call a Wassermann test, or the report of a culture, great issues may hang, and an attempt to carry on work with an improvised laboratory and an improvised pathologist can only end in disaster. Pathological reports, if they are to be of any value at all, must be beyond suspicion.

That it is the intention of the responsible authorities to afford every facility for carrying out the excellent suggestions made in Memorandum V. 21 we have little doubt. Some of the larger special treatment centres have already instituted testing departments, through which patients must pass before they are discharged as cured. Their value to preventive medicine has already been proved. The issue of this memorandum ought speedily to result in the formation of similar departments in other clinics, and we look forward to the day when no one who has suffered from venereal disease will be authorized to return to ordinary ways of life until it has been established that he or she has ceased to be a potential danger to others. Much work will be required, and great changes will have to be effected in the mental attitude towards venereal disease, both of the medical profession and of the public, before this end can be attained. That the end can be attained and that Memorandum V. 21 is a step in this direction we are confident.

POOR LAW INFIRMARIES AND CLINICAL EDUCATION.

AN important decision was taken at a meeting of the Paddington Board of Guardians on January 7th. The Hospital Committee reported that it had considered a letter from the chairman of the Board of Management of St. Mary's Hospital asking the guardians to co-operate by allowing students to help in the wards of the Paddington Infirmary, under the supervision of Dr. A. G. Stewart, the medical superintendent. The letter began by stating the Medical Committee's belief that for any advance in the care and treatment of sick people something more than legislation was necessary; the foundation of such an advance must be laid by raising the standard of undergraduate teaching. The Board of St. Mary's Hospital had therefore decided on a scheme of reorganization for training students, to include the appointment of four members of the staff, who would devote their time to teaching, and not, as hitherto, mainly to private

practice. After outlining the proposal for co-operation, the letter went on to record the Medical Committee's conviction that the attendance of students in the wards of the Paddington Infirmary, so far from being detrimental to the welfare of the patients, would contribute towards increased efficiency in treatment. In considering this proposal the Hospital Committee of the board of guardians sought the opinion of Dr. Stewart, who indicated various ways in which the infirmary would gain under such an arrangement. Thus, the students would assist as clerks or dressers in the wards, facilities would be afforded for having the help of the pathological and other special departments of St. Mary's Hospital, and the advice of the hospital staff would be available. Dr. Stewart went on to point out that the publicity and inspection of work would stimulate all concerned and so benefit the patients, and finally that, in the public interest, the teaching opportunities of the infirmary should not be wasted. The committee accordingly recommended the board of guardians to approve the proposal for St. Mary's students to attend at the infirmary, at times arranged by the medical superintendent, on the understanding (*a*) that the ordinary work of the infirmary is not interfered with; (*b*) that the working conditions are under the medical superintendent's control; and (*c*) that the scheme may be terminated at will by the guardians. This recommendation was unanimously approved by the board. It is very plain to us that the advantages of such a scheme must flow both ways. The gain to the infirmary has been ably sketched by Dr. Stewart. The students for their part will gain by seeing cases that seldom stay long in a general hospital, but yet figure largely in general practice. The pathological and bacteriological department of the hospital must benefit, too, by the widening of its field of investigation. Should the plan prove a success in its working in Paddington, other teaching hospitals and infirmaries will almost certainly follow suit. The Paddington Guardians and the Board of St. Mary's Hospital are to be congratulated. On their own initiative they have done what certain reformers have for long advocated, for it is a commonplace that the Poor Law infirmaries can, with advantage to their patients, afford opportunities for the clinical training of medical students hitherto almost entirely wasted. That the need for making better use of Poor Law institutions is grasped by the Ministry of Health may be judged from the remarks made by Sir Robert Morant during the discussion on the teaching of obstetrics and gynaecology at the Royal Society of Medicine six weeks ago.[1] Much thought, he said, was being given in the Ministry to the serious and urgent problem of the provision of hospitals, but first of all the whole ground must be systematically surveyed. If the Poor Law was to be reformed, the existing institutions and the infectious disease hospitals of the Metropolitan Asylums Board must all be brought into the survey and every part of the problem considered in its relation to the whole.

TEMPORARY COMMISSIONS, I.M.S.

ONE of the representations made by the British Medical Association to the Secretary of State for India, when it was discussing with him the future of the Indian Medical Service, was that immediate steps of a temporary nature should be taken to meet the hard case of officers of the service who have served continuously for many years in India without obtaining the leave to which they are by regulation entitled. We publish at p. 96 a letter from the chairman of the Naval and Military Committee, Colonel R. H. Elliot, I.M.S. (retired), asking young medical men who have not yet embarked in civil practice at home to consider the terms of the offer now made. Applications are invited from British subjects of European descent, not more than 35 years of age, to take temporary commissions in the Indian Medical Service under a contract to serve for two years. An officer who has served for three or more years in the Home, Colonial, or Indian forces will be given a commission as captain and will receive pay at the rate of 750 rupees a month. An officer who has not had this experience will receive a commission as lieutenant and pay at the rate of 700 rupees a month. Free passages will be provided both ways, and if the officer is married his wife and family will be sent out at Government expense in the autumn of 1920 provided shipping is available. No mention is made of return passage in this case; Colonel Elliot assumes that this is an oversight, but the matter is being taken up with the India Office. We endorse the opinion of the chairman of the Naval and Military Committee that the terms offered are good. We are advised that an officer without wife and family should be able to live on 400 rupees a month in India. This would leave a balance of 300 rupees a month, which at the present high rate of the rupee in this country (2s. 4d.) would be equal to £420 a year. Taking the expenditure in India at the rate of 15 rupees to the £1 the annual pay may be reckoned as equivalent to £740. This is one side of the matter. The other is that during his term of service in India the officer will have the opportunity of obtaining clinical experience in medicine as well as surgery, more extensive and intensive than he could well hope to gain within the same time in this country. To many a man the opportunity of seeing new countries and new people will be attractive, and, while he will know that he is not bound for more than two years, we make no doubt that, should a good man determine to remain in India, he will encounter no difficulty in obtaining a permanent commission. We may note that the Secretary of State for India is also prepared to give permanent commissions to 136 Europeans. The appointments will be made by nomination, and candidates must be under 32 years of age. The terms and conditions were stated in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of September 13th, 1919, p. 69.

[1] BRITISH MEDICAL JOURNAL, December 20th, 1919, p. 814.

THE ORIGIN OF POLYMORPHONUCLEAR LEUCOCYTES.

IT is generally believed that the white blood corpuscles of mammals come from two distinct sources, the lymphocytes and mononuclears from the spleen and lymphatic glands, and the granular leucocytes from the bone marrow. Ehrlich was probably the first to bring into prominence this dualistic theory, but sceptics have not been wanting. Some interesting experiments bearing on the point have recently been published by De Laet[1] from Professor Bordet's laboratory in Brussels. The research was suggested by certain observations by Gay and Claypole, who in 1913 found that if living typhoid bacilli were injected into the circulation of an untreated rabbit there was, first, transitory leucopenia; this was quickly followed by hyperleucocytosis, which in sixteen to twenty-eight hours after inoculation reached a maximum of 34,000 to 56,000 per cubic millimetre; but if the experiments were repeated on rabbits previously immunized against the typhoid bacillus, the leucopenia was of shorter duration and the hyperleucocytosis very quickly reached a maximum of 80,000 to 274,000 per cubic millimetre. Their conclusion was that the immunizing serum played an active part in exciting the production of the leucocytes. De Laet injected into the internal jugular of guinea-pigs 1 c.cm. of an emulsion of typhoid bacilli killed by heat. The animal was killed twenty-four hours afterwards and its spleen was removed aseptically, cut up into fragments not exceeding one or two millimetres in diameter, and placed in sterile Ringer's solution maintained at a temperature of 38° C. These fragments were removed to sterile tubes by means of pipettes and, by sloping the tubes, were made to adhere to the walls. They were then covered with a

[1] *Annales de l'Institut Pasteur*, November, 1919.

mixture consisting of four parts of fresh guinea-pig serum to one part of a 2 per cent. solution of agar in physiological saline; the mixture was kept at 42° till it was required. The tubes were covered with an indiarubber cap and placed in a sloping position in the incubator. Controls were made in a similar fashion with untreated guinea-pig's spleen. On the third or fourth day of cultivation a characteristic whitish, somewhat opaque, zone was noticed around the fragments of the "typhoid" spleen, as marked in the case of the larger fragments as in the most minute, reaching its maximum breadth in eighty to ninety-six hours. The untreated spleen, on the other hand, showed merely scarcely visible prolongations from the periphery of the most minute fragments. When these zones were examined microscopically by making films from them a strange appearance was seen. In the case of the "typhoid" spleen enormous quantities of neutrophile polymorphonuclear leucocytes were observed so that the preparation resembled a film of pus. Sections showed that some of these leucocytes by virtue of their amoeboid properties had travelled for almost a centimetre from their focus of origin. This phenomenon did not occur in the case of the untreated spleen. Nor was any such effect produced when the tissues of the bone marrow or lymphatic glands of treated animals were cultivated. It would thus seem that the supposed action of the bone marrow in dispatching leucocytes to the spleen can be ruled out, and that the thorough lavage to which the splenic fragments are subjected during preparation deprives them of any considerable number of myeloblasts and myelocytes. Confirmatory experiments with other bacteria would go far to substantiate the conclusions drawn, namely, that the spleen can itself produce granular leucocytes.

FRIEDMANN'S TURTLE VACCINE.

IN the December number of *Tubercle*, a new monthly journal devoted to all aspects of tuberculosis, a critical review is given of the switchback career of Friedmann's turtle vaccine. The review deals with the literature of this subject up to the end of August, 1919, and is not, therefore, quite up to date, as barely a week passes without the publication of a new crop of puffs and counter-blasts in the German medical journals. A Gilbertian touch has been added to the controversy by the appointment of Friedmann to a special professorship in tuberculosis, not only without the advice and consent of the faculty of medicine in Berlin, but even against its emphatic protests. Another means of popularizing Friedmann's vaccine has been devised by Professor Dührssen, who has published a *Festschrift* to commemorate Friedmann's achievements. As a professor of gynaecology, he has been reminded by his colleagues that the cobbler who sticks to his last sets an example that scientists should strictly follow; but this hint has not deterred him from supplementing his *Festschrift* by much polemical writing and speaking. His advocacy, addressed rather to the general public than to the medical profession, has served the useful purpose of drawing from Professor Kirchner some curious facts. Friedmann, it is stated, was advised by Kirchner in February, 1913, to submit his remedy to Ehrlich's examination. The latter agreed to test it, stipulating that nine to twelve months' investigation would be required before any verdict could be given. He was accordingly astonished a few days afterwards by a request for an immediate opinion, and, three months later, by a cable from America soliciting a testimonial as to the harmlessness of the remedy in guinea-pigs. Both these requests were refused. By January, 1914, he had ascertained that 10 out of 18 guinea-pigs had died in eight to eighteen days after an injection, with signs of rapid wasting and severe cachexia, for which no explanation could be found after death. In none of the 20 guinea-pigs inoculated with tubercle bacilli did the simultaneous, and sometimes repeated, injection of the vaccine prevent the development of fatal generalized tuberculosis. But many of the reports published in 1918 and 1919 deal with cases of arrest of previously severe and progressive disease in patients for whom the outlook before the institution of this treatment was exceedingly black. In a recent number of *Zeitschrift für Tuberkulose* Professor Orth, in the course of a lengthy paper on workmen's compensation and tuberculosis, refers incidentally to investigations by himself showing Friedmann's vaccine to confer on guinea-pigs a considerable degree of immunity from tuberculosis.

MEDICAL SICKNESS ASSURANCE.

THE Medical Sickness, Annuity, and Life Assurance Friendly Society, which was founded in 1884, has done much useful work for the profession, has shown a readiness to adapt itself to needs as they arose or were disclosed, and is continuing its excellent work, which might be more beneficial to the profession if a larger number of medical practitioners availed themselves of the advantages it offers. Besides the usual life assurances in the form of endowment assurances, annuities, etc., the special feature of the work of the Society is the sickness insurance scheme framed to meet the particular requirements of medical men. It is in the nature of a permanent contract, extending to 65 years of age, for the insurance of a weekly sum payable in full for the first twenty-six weeks of incapacity, and of half the full amount thereafter so long as the incapacity continues down to the age of 65. It is important to note that the contract is renewable or terminable at the option of the insured and not of the company; the policy, therefore, provides not only for temporary illness, but also against prolonged breakdown. Many cases have occurred within the experience of the Society in which men have been compelled to draw the weekly sum for many years, and even down to the limiting age. The rates charged are materially lower than those required for similar benefits by certain other societies; this is possible because the Society does not pay commission and does not employ agents; the saving may, we believe, be estimated at about 25 per cent. on the premiums paid. There can be no doubt at all of the importance to medical practitioners of making provision against sickness, for there is no profession in which prolonged withdrawal from work has so disastrous an effect. The Society was founded by medical men and has been continuously conducted in the interests of its policy holders, who are all members of the medical profession. Its position is financially sound, and it is remarkable, considering the advantages it is enabled to offer, that it has at the present time no more than 3,500 policy holders. Particulars of the terms and conditions offered can be obtained from Mr. Bertram Sutton, Secretary, Medical Sickness, Annuity, and Life Assurance Friendly Society, at 300, High Holborn, W.C.1.

WE are informed that the announcement made a fortnight ago to the effect that Professor E. H. Starling had definitely accepted an invitation to become Director of the medical element of the University Unit at St. Thomas's Hospital was premature. Such an appointment was contemplated, but depended on the fulfilment of certain conditions, which it has not been found possible to realize.

A SPECIAL general meeting of the Royal Society will be held on Thursday next, January 22nd, at 3.30 p.m., when H.R.H. the Prince of Wales will attend to be admitted to the Society. Afterwards there will be an ordinary meeting, at which papers, chiefly on physics, will be read. A meeting for discussion will be held on February 5th, when a debate on the theory of relativity will be opened by Mr. Jeans and continued by Professor Eddington, the Astronomer Royal, and others.

Scotland.

PROPOSED LISTER MEMORIAL INSTITUTE IN EDINBURGH.

THE project originated shortly before the war, and described in our columns of March 13th, 1914, for the establishment in Edinburgh of a permanent memorial to the late Lord Lister, has been revived. The University of Edinburgh, the Royal College of Physicians, and the Royal College of Surgeons of Edinburgh have come to the conclusion that the most suitable form for such a memorial will be an institute in which the scientific investigation of disease in any of its forms can be undertaken, and in which the principal sciences concerned can be adequately taught. It was in Edinburgh that Lister elaborated and consolidated his system, and it is appropriate that the scientific spirit which animated him and the methods of research he developed should be commemorated and continued in that city. Lister's work in the wards of the Royal Infirmary would have been fruitless—could not indeed have been carried out—had he not first tested his theories in the laboratory. It was in and through research that his system of treatment came to fruition. Research was the keynote of his work, and it is to research and the teaching of the results of research that the proposed memorial is to be dedicated. The need for such a centralized teaching and research institute in Edinburgh, it is said, is pressing. At the present time the burden of such work is borne by the University Department of Pathology and the Laboratory of the Royal College of Physicians. Of these, the former, built and equipped thirty-five years ago, is now inadequate, and the resources of the latter, particularly as regards the accommodation of the workers, are entirely insufficient, even for present needs. There is as yet no permanent memorial to Lister in Edinburgh, and it is felt that the rapid development of pathology, of bacteriology, of clinical pathology, of pathological chemistry, and of other cognate branches of knowledge has widened the field to such an extent as to render it necessary that the building erected to his memory shall be modern in design and equipment, and sufficiently large to house all the departments enumerated. The proposed new institute will be managed by a board on which the University and the two Royal Colleges will be represented.

A committee has been formed to make an appeal for £250,000 to pay for the site, to erect and equip the necessary buildings, and to provide for maintenance, apart from remuneration to research workers. A site, described as extensive and extremely suitable, has been secured close to the Edinburgh Royal Infirmary and the Medical School of the University at a cost of over £50,000. The President of the committee is the Right Hon. A. J. Balfour, M.P., Chancellor of the University, and the Vice-Presidents are the Duke of Atholl, the Earl of Rosebery, Earl Beatty, Lord Glenconner, Lord Leverhulme, and Sir J. Lorne MacLeod. An appeal has been issued, signed by Sir J. A. Ewing, Principal of the University, Sir R. W. Philip, President of the Royal College of Physicians of Edinburgh, and Dr. George Mackay, President of the Royal College of Surgeons of Edinburgh. The University has given £10,000, the College of Physicians £10,000, and the College of Surgeons £5,000.

MR. C. E. GREEN, PUBLISHER, OF EDINBURGH.

Mr. Charles E. Green, who died after only three or four days' illness on January 6th, was passing through the medical classes in Edinburgh with the career of a medical missionary in full view when the early death of his father threw him into business. Out of the permutation thus effected in his life grew in time the well known firm of law publishers called William Green and Son, with many fine series of works coming from its presses; but the desire to do something in medicine was only diverted. Mr. Green soon added to his various legal publications, including the world known Scots and English Law Reports (45 and 180 vols. respectively), and such periodicals as the *Scots Law Times* and the *Juridical Review*, various medical publications, including the *Encyclopaedia Medica*, *Green's Encyclopaedia and Dictionary of Medicine and Surgery*, the *Veterinary Review*, and a goodly number of separate works, such as Noël Paton's *Physiology*, Barbour and Watson's *Gynaecological Diagnosis and Pathology*, Walker's *Dermatology*, Fothergill's *Midwifery*, Ballantyne's *Manual of Antenatal Pathology and Hygiene*, and others. But more, Mr. Green himself ventured into the arena of medical literature with a work on the *Cancer Problem*, which excited admiration for the great number of observations it contained lying behind it, and of the variety of technical matters (outside of what may be called conventional medicine) embraced in it. He could write a good tale, too, as his *Lives in a Lowland Parish* proved, and he had fresh powers of description, as his county *History of East Lothian* showed. He never lost his admiration of the life of the medical missionary; for many years he paid the salary of one of the medical men working abroad under the Edinburgh Medical Missionary Society—of which he was one of the directors and a trustee—and his help made it possible for more than one medical student training for the foreign field to pass through the medical curriculum with greater comfort. In his later years he was much attracted by mother and child welfare work; he was an extraordinary director of the Edinburgh Royal Maternity Hospital, and took a great interest in the antenatal department of that institution. He will be sorely missed in Edinburgh and in the county, where his historically interesting home (Gracemount) was ever open to his many friends and neighbours, and his comparatively early death—he was 53—will be widely mourned; he could yet have accomplished still greater things in publishing, and might have, at any rate, seen several large works brought to completion under his own supervising mind. Mr. Green was elected a Fellow of the Edinburgh Royal Society some years ago; he was a fluent and effective speaker at meetings for patriotic and charitable purposes. Another side of his activities was farming; he farmed his own land. Indeed, he brought enthusiasm and nearly always success into whatever his hand found to do.

HOUSING.

A gloomy picture of the pre-war and present state of housing conditions in Scotland is drawn by Sir George M'Crae, D.S.O., in his *Summary of the Report by the Commission on Housing in Scotland*.[1] At the end of 1913, he says, 474 cases of pulmonary tuberculosis were being treated in houses of one apartment in Glasgow, and 1,589 cases in houses of two apartments, to quote a single example of monstrous overcrowding. The *Summary* is short and well written, and should be of value to all who have any direct interest in the subject with which it deals.

England and Wales.

PRESENTATIONS TO LIEUT.-COLONEL D. G. THOMSON.

A PRESENTATION was recently made by the permanent heads of departments of the Norfolk War Hospital to the Commanding Officer, Lieut.-Colonel D. G. Thomson, C.B.E., in recognition of the successful war work carried on by him during four and a half years, when 45,000 sick and wounded soldiers passed through the wards. The presentation consisted of an illuminated address and a barometer, together with a bouquet for Mrs. Thomson. Warm tributes to Colonel Thomson were paid by the Matron, Miss Hamer, R.R.C., and the hospital architect, Mr. George Smith. A presentation of silver plate has also been made to Colonel Thomson by the medical staff on the demobilization of the hospital. The plate, which was presented by Major Charles Noon, F.R.C.S., on behalf of some twenty colleagues, took the form of a handsome silver salver, inscribed: "From the Medical and Surgical Officers of the Norfolk War Hospital, Thorpe, Norwich, to Lieut.-Colonel D. G. Thomson, R.A.M.C., C.B.E., M.D., commanding the Norfolk War Hospital, 1915-1919."

PRESENTATION TO DR. A. E. LARKING.

A short time ago Dr. A. E. Larking, who has accepted the appointment of medical school inspector in the Chesham district, Buckinghamshire, was the recipient, on the occasion of his retirement from practice in Buckingham, of a valuable testimonial, consisting of a wallet with £50

[1] *Summary of the Report by the Royal Commission on Housing in Scotland*. Edited by Archibald Stalker. With Foreword by Sir George M'Crae, D.S.O. London and Edinburgh: W. and R. Chambers, Ltd. (Cr. 8vo, pp. 78. 1s. net.)

in Treasury notes and an album containing an illuminated address and the names of 700 subscribers. The address expressed the esteem felt for Dr. Larking's great and devoted services to all classes during his residence in Buckingham for thirteen years. The ceremony took place at the Town Hall; Alderman Osborne presided and the Vicar made the presentation. Dr. Larking, in acknowledging the gift, spoke of the regret with which he had decided, on account of his wife's illness and his own uncertain health, to retire from practice in Buckingham. Dr. Larking is honorary secretary of the Buckinghamshire Division of the British Medical Association and of the Buckinghamshire Local Medical and Panel Committee.

Correspondence.

TEMPORARY COMMISSIONS, I.M.S.

SIR,—Will you allow me to help to clear up the question of the suitability of the terms offered by the Secretary of State for India to temporary officers, with a view to relieving those members of the I.M.S. whose leave from India is long overdue?

The matter was gone into very carefully and at length by the Naval and Military Committee, and the terms fixed by that body were communicated to the Secretary of State. They were:

1. That a two years' contract be offered.
2. That the salary offered be Rs. 650 per mensem.
3. That a free passage out and home should be given.
4. That those appointed should be allowed the option of joining the I.M.S. during or on the completion of their contract, if they desired to do so and if they are found suitable.

In reply to this letter the Secretary of State has offered terms which include the first three of the above provisos; and he has gone even further, since he has offered a salary of Rs. 700 per mensem to a lieutenant and Rs. 750 to a captain. He has not made it clear that the fourth proviso is granted, but this is probably an oversight; the matter is being taken up with him.

With regard to the terms for permanent men I have nothing to say in this letter except to remark that opinion in the British Medical Association is hardening, that the terms mentioned in the letter under review represent the minimum possible. That is, however, a question which I need not deal with for the moment. What I do desire is to impress on young medical men the advantages of these terms for temporary commissions which the Secretary of State has offered them at the instance of the Association. The Naval and Military Committee took pains to name conditions which would be both fair and advantageous to the young doctor, and it would be a thousand pities if the unfortunate mistake, probably a mere oversight, of the India Office in communicating that offer to the public press before it made it known to the Association were allowed in any way to prejudice the case. The utter inaccuracy of the estimate of the pay offered, as computed by a daily paper, should not be permitted to blind us to the facts of the case. I agree with everything that the JOURNAL said on those very misleading figures, and, indeed, had already pointed out its mistake to the paper in question, but it has taken no action to put the matter right.

To look at these terms a little closer. The young man who has taken his qualifications, and has done a certain amount of practice but who feels that he wants more experience, will find an unrivalled field in India, be his bent what it may. At a time when in England his responsibilities would be very small, he will get the chance of doing really big work as a surgeon, as a physician, or as a specialist. He will come back from the East a very different and a very much more capable and self-reliant man than he went out. Apart from professional advantages, he will acquire the larger outlook on life which travel and contact with other peoples bring.

The pay offered him is liberal; he can live on it, and if he is single he can save if disposed to do so, or have a really good time if he prefers. His passage is paid both ways. His wife and family are to be sent out in the autumn of 1920 at Government expense, provided that shipping is available. It is not stated that they will be sent back at Government expense, and this point must be cleared up, but it would be difficult to believe that any other course could be contemplated.

Another question the young man should ask is whether he is to be allowed the advantage of the fourth condition suggested by the Association in its letter referred to above. If he is, then his position is a very fortunate one, for he will be free, after two years of practical experience, to make up his mind whether he really wishes to decide for permanent Indian service or not. By that time, too, the conditions which are to be offered to the Indian Medical Service will be known and established.

I am convinced that the terms the Secretary of State is offering are well worth the consideration of young doctors, and I know that the same opinion is held by the members of the Naval and Military Committee. My plea is that young men should give consideration to a fair and a good offer made to try and surmount the present great difficulties in the grant of leave to I.M.S. officers, who badly need it.

—I am, etc.,

R. H. ELLIOT,
Lieut.-Colonel I.M.S. ret.,
Chairman, Naval and Military Committee,
British Medical Association.

London, W., Jan. 13th.

PUBLIC HEALTH VERSUS THE STATE.

SIR,—I have been immensely amused at reading Mr. Baskett's address (January 10th, p. 41). We are all agreed that a plentiful food supply would have the effect of improving health, but the price of bread did not fall consequent on the abolition of the Corn Laws.

From 1820–1829 the price of wheat was	...	59s. 10d.
From 1830–1839	,,	,,	,,	... 56s. 9d.
From 1840–1849	,,	,,	,,	... 55s. 11d.

The fall from 1830–1839 was 3s. 1d., while from 1840–1849 the fall was 10d. The price remained over 50s. until the eighties, forty years after the repeal of the Corn Laws, when it fell with a bump.

If it was free trade which made the death rate from tuberculosis come down in England, it should have made it come down in Ireland. I will challenge Mr. Baskett to promulgate this on any Sinn Fein platform. I would advise him, however, to insure his life first.

In New York the rapid fall in the death rate after the McKinley tariff of 1890 proves the very opposite of what he sets out to demonstrate. As to Prussia, he is quite wrong when he speaks of the Caprivi treaties being Germany's nearest approach to free trade. During the first eight years of the empire they practically had free trade. The duties on wheat and rye were trebled in 1885, and immediately the death rate from tuberculosis fell (see Mr. Baskett's Chart IV). The merest tiro knows that the prosperity of the German working classes dates from the adoption of the protective policy of List in 1879.

His paper would be all right for the Cobden Club, but is unworthy of being laid before scientific men. I was brought up as a Liberal at the feet of John Bright; but for four years I was a Poor Law medical officer in Birmingham, where I found men starving as a result of unemployment through our system of *laisser faire*. This led me to study the matter at first hand, and the conclusion I came to was that the Chartist leader was right when he said: "'Cheap bread,' they [the Free Traders] cry, but they mean *low wages*."—I am, etc.,

SIDNEY BARWISE, M.D., B.Sc.Birm.

Derby, Jan. 13th.

SIR,—It must not be overlooked or forgotten that during the latter part of the period surveyed by Dr. Baskett in his address on Public Health *versus* the State, owing to increased facilities and improved methods for arriving at a correct diagnosis which then obtained, and also to a lesser degree to the disease being then a notifiable one, many deaths were certified as being due to tuberculosis which previously were not so certified. These factors played a vastly greater part in the maintenance of a high mortality rate from tuberculosis than any possible increase of poverty due to the passing of the Insurance Act.

Since the moneys expended on the notification of tuberculosis and on the provision of scientific means for correct diagnosis come out of the public funds, perhaps these matters might also be conveniently considered along with the Insurance Act at the inquiry (should such be held) into its effects upon the nutrition of the poor.—I am, etc.,

H. W. FREER, M.R.C.S.Eng.,
L.R.C.P.Lond.

Colwyn Bay, Jan. 10th

"NEW LAMPS FOR OLD" IN OBSTETRICS.

SIR,—In the correspondence that is now going on with regard to the question of using forceps unnecessarily in midwifery cases may I give my experience? I was a pupil from January 1st, 1867, for five years with an expert in midwifery, and his advice was—Wait on Nature, and do not be in a hurry to use instruments. After my pupilage was over and I had qualified, I remained on as assistant for a further five years, and during the ten years I attended over 2,000 cases, instrumental cases being rarities.

In 1877 I commenced practice for myself in quite a different part—a manufacturing town—and have been actively engaged and still am so engaged in attending midwifery cases. This district is noted for two things: first, a tendency to narrowing of the brim of the pelvis by prominence of sacrum; and, secondly—and this is more frequent—that is, since midwives have been trained there is a great deal of impatience amongst parturient women against waiting for Nature to complete the case, and a great cry out either for twilight sleep or for chloroform and instruments; patients will not wait. The cases mostly now met with are those in which the midwife sends for help. In the fifty-three years I have been attending on midwifery I have helped at over 10,500 cases, and of later years these have been mostly instrumental or operative or craniotomy or version. I have had one case of Caesarean section and seen many cases of eclampsia where operative help has been required. There have been very few deaths amongst my patients and very few cases of serious post-partum haemorrhage. Craniotomy for deformed pelvis has been resorted to in first cases; later pregnancies of these women have been by induction of labour at seven and a half months, with resulting living children.

Summing up from the work I have done, I come to the conclusion that, rightly used and in the right kind of cases, instruments and chloroform are a boon to parturient women, relieving them of the intense pain of the last stage before birth. It is impossible to lay down any definite axiom that it is wrong to use instruments. Given fully dilated cervix and head well down, then our duty is to conserve the strength of the patient, to save all needless suffering, and to give the help that is required carefully. Districts differ in the build of women, and where the chief employment is of a character requiring the women to sit all day at work this may be a reason for either deformity or loss of power to bear pain; and, lastly, the trend amongst women of the present generation is to resent the fad that they have to suffer the pains of becoming a mother, and to do all they can to reduce their sufferings to a minimum. This is partly due to the teaching of "twilight sleep" and also to the emancipation of women and raising them to an equality in work with the opposite sex.—I am, etc.,

January 11th. A GENERAL PRACTITIONER.

SIR,—I am concerned lest the thesis of my paper read before the Obstetric Section of the Royal Society of Medicine last May, and which your leading article of November 22nd epitomized under the heading "'New lamps for old' in obstetrics," should be lost sight of in the orgy of controversy provoked by Dr. J. Fairbairn's letter of November 29th.

I urged that the teaching of midwifery should be invested with the surgical attitude of thought and its practice safeguarded by all those circumstances of environment, assistance, and asepsis which are accepted *sine qua non* in every department of recognized surgery. In short, that the art should be taught, practised, and recognized as a branch of surgery.

Dr. Fairbairn's letter has drawn a red herring across this line of thought. My paper was not concerned with whether midwifery should be more "operative" or less "operative"; it argued that it should be more "surgical," which is quite another and much larger thing. When we have secured for midwifery those requirements which are elementary in all other departments of surgery, it will be time enough to discuss the percentage of cases requiring operation. Until then such controversy obscures the more important issue.—I am, etc.,

London, W., Jan. 10th. VICTOR BONNEY.

TICKS AND RELAPSING FEVER.

SIR,—I was interested in the paper on "Tick Fever in Palestine," by Dr. Nicholson, which appeared in the BRITISH MEDICAL JOURNAL of December 20th, 1919 (p. 811), but he is in error when he states that I found that the Miana fever of Persia was a form of relapsing fever transmitted by the tick *Argas persicus*. Since his paper appeared I have been trying to discover how his error arose, and have been looking through the literature on the subject, and papers of my own on spirochaetosis which might possibly contain some reference to the disease in Persia. In all probability Dr. Nicholson was led astray by a note on p. 246 of the sixth edition of Sir Patrick Manson's *Tropical Diseases*, where I find my name is bracketed along with the spirochaete of Miana disease. I may say that my only visit to Persia was paid during the war, when I spent a short time at Ahwaz on the Karun River and in Shuster, but I saw nothing of relapsing fever at that time, and had no opportunity of making inquiries regarding it.

I cannot discover that I have anywhere stated that Miana disease was due to a spirochaete carried by *Argas persicus*, nor do I recollect ever making any such statement. I find I once said that *A. persicus* was stated in Persia to bite men, but beyond this guarded utterance I do not seem to have dealt with the question at all, although it is possible some reference may have escaped my attention. As a matter of fact our knowledge as regards Miana disease seems to rest much where it was when Nuttall wrote his paper, "On the rôle of insects, arachnids, and myriapods as carriers in the spread of bacterial and parasitic diseases of man and animals: a critical and historical study," in the *Johns Hopkins Hospital Reports*, October, 1899, vol. viii. So far as I know we have no definite evidence that *A. persicus* can transmit any human spironema, and although Dr. Nicholson's observations are interesting they are by no means conclusive, as it is impossible to say whether lice were absolutely excluded as vectors. There seems, however, to be a very general belief that in Palestine *A. persicus* is a transmitter of the infection of relapsing fever. I remember that when on the road north of Jaffa in July, 1918, I was shown certain rock tombs or caves in which it was said men had slept and had there acquired relapsing fever from the bites of ticks which lived in these miniature caverns (Fig.). At the same time this belief does not appear to have been founded on any sound scientific basis.

Rock tombs or caves in Palestine.

In Cilicia and northern Syria, Schneider in 1912 described (*Archiv für Schiffs- und Tropen-Hygiene*, vol. xvi) a form of relapsing fever which he attributed to ticks (species not determined), but he advances no conclusive proof in favour of his hypothesis, and does not consider the question of lice being the carriers. Until careful experimental work is carried out on the subject it is inadvisable to attribute either the Cilician or the Syrian type of relapsing fever to *A. persicus*, although we may note that, according to Boyd, the disease in Palestine differs in some respects from that found in Egypt, where it is undoubtedly carried by lice.

I find that under the heading "Relapsing Fever" in the

"Memoranda of Medical Diseases in the Tropical and Subtropical War Areas" I wrote as follows:

"There is some evidence to show that in Palestine, apart from lice-borne relapsing fever, there is a form, possibly like that described in Cilicia and Persia, where the infection is conveyed by the fowl tick, *Argas persicus*."

This, however, is not intended to mean that the disease in Cilicia and Persia is carried by *Argas persicus*, but merely that, clinically, the relapsing fevers of these countries may resemble that seen in Palestine. I admit, however, that if read hastily it might possibly convey a wrong impression.—I am, etc.,

ANDREW BALFOUR.

Wellcome Bureau of Scientific Research,
10, Henrietta Street, London, W., Jan. 5th.

FORGETTING: PSYCHOLOGICAL REPRESSION.

SIR,—All questions relating to the mind are elusive and evasive, and many theories have of late been propounded to account for the cure of functional mental and nervous conditions, many of these views expressed with more haste than deliberation and consideration.

I have been much interested in the able remarks of Dr. Alfred Carver in the BRITISH MEDICAL JOURNAL of January 10th, and I venture to think that he and others have animadverted without reasonable or adequate cause, certainly without justification, upon the advice given by Sir William Hale-White in his paper on August 23rd, to encourage the "neurasthenic"—to use the term in its widest sense—to forget his war experiences by the practice of mental diversion of various kinds.

I am not so impertinent as to attempt to defend Sir William Hale-White; he is fully capable of demonstrating to the younger school of psycho-neurologists that during the great war the path of progress has been paved with many abandoned theories. There has been a strong tendency to offer some plausible explanation—often very grotesque and inconsequent—of sudden recovery in functional mental and nervous states. Patients suffering from these states are all in a most receptive and susceptible mental condition, and some of them immediately accept any suggestion made to them as to the motives for their strange conduct and actions or as to the origin of their symptoms, which may disappear by suggestion as if by magic and which in many instances return equally without reason or notice.

The unconscious mind is believed to be a great twentieth century discovery, and to this is attributed not only the ordinary phenomena of mental life but also the vagaries of the psycho-neurotic, and this source—variously described as the *élan vital* (Bergson), the horme (Jung), the libido of Freud, or the craving for life, love, or action—is regarded as the prime mover of all action.

I have never been able to accept this endopsychic censor as the mysterious unseen power that has until recently escaped detection, although with others I have long realized the great influence of the unconscious mind and its teleological trend, for it helps to perpetuate the individual, to enable him to carry out perfunctorily the everyday routine duties by saving him the necessity of endless repetitions. It has to ignore and "forget," but I doubt the reasonableness in treatment of bringing to the surface and rekindling with emotion what has been usefully and purposely ignored, and I doubt if the unconscious mind has to seek for immediate satisfaction in some other activity, or that this is of necessity sexual.

I question whether it is possible to "forget" by an act of volition or to abolish actively any painful memory from consciousness, or, in other words, whether it is possible to repress what is intolerable, except in so far as this can be attained by bringing in new thoughts, ideas, or impressions to occupy the field of attention and thus build up new associative links, and so help to form new habits. Pain and hurt and danger are not ignored and forgotten because they are unpleasant or intolerable. If this were not so, self-preservation would be impossible, therefore I question whether it is practicable to forget by an act of volition directly.

From a not inconsiderable experience of the war neuroses in the London Command, and from a very long experience of the mild and severe forms of psychoses in civilians, I am of opinion that it is not orthodox mental therapeutics to lay down an axiom—as is done, if I rightly interpret Dr. Carver, and I quote his own words—that the necessary first step in the cure of mental and nervous states is the making conscious of the forgotten, the bringing to the surface of what is repressed, and the transference of memories by what has been weirdly designated as "ab-reaction." If any claim is made to a cure by recalling war experience, then the investigator must himself possess an absolute and true photographic record of the actual battle scenes, otherwise the effect is purely that of suggestion.

In these cases, as in all mental and nervous states, much must depend upon the nature, and the temperament, and the mental "make up" of the individual patient. For some distracted persons it is possible that the "cathartic" effect of getting rid of unpleasant thoughts by "ab-reaction" may be appropriate treatment, and may tend towards recovery, but to others the opposite would undoubtedly occur. Would any psychiatrist suggest that a woman suffering from one of the functional anxiety psychoses, described as acute restless mental depression, would be cured or relieved by reminding her luridly of the bare home, the cruelties of a drunken husband, or the death of her children through neglect? Is it mental therapeutics to remind the disappointed girl who has become a mental and moral wreck of the broken promises of her faithless lover? Is it rational treatment to remind the first offender, who is endeavouring to reconstruct his life in a new environment, of the crime to which he yielded in a moment of temptation? Does the nervous actor regain his lost confidence if he is reminded of his first-night stage fright; or would he be happier and less nervous if the horrors of the occasion were again represented to him by his candid friends? or would the sensitive musician be able to play better through being reminded of the piece he had forgotten and the fiasco that ensued? Similarly in the case of many a soldier hero who may have broken down, is it sound treatment to bring before his conscious mind the horrors he has seen, the terrifying sounds he has heard, and the awful experience he has gone through, and to have all these unpleasant and forgotten memories brought to the surface, and then "to attach them to suitably associated presentations"? If, as in some instances, an immediate and temporary recovery has taken place, this has more probably been caused by the sudden element of surprise, the emotional shock acting by suggestion from the person who exercises over his patient what has been described as a dominating personality; and the same applies to the sudden cure of obsessions, such as the one recorded of an immediate recovery from "claustrophobia," the patient being relieved, it was said at once, by bringing to the memory the bite from a dog in a narrow passage long forgotten, this also being an example of "suggestion."

The psychoses and neuroses are Nature's means of defence, and I venture to believe they are best relieved by helping Nature to obtain a complete rest and some mental diversion, by providing pleasant memories, new ideas and new inspirations which will enable the patient to bury in the unconscious mind the forgotten sources of his failure. If Nature's methods of restoration are jerkily hastened there will be an inevitable risk of a relapse.

No saner advice was given than by Frances Power Cobbe, who compared the unconscious mind to the faithful private secretary who performed his work silently and in his own way and best when not disturbed, and that the same treatment should be meted to it.—I am, etc.,

ROBERT ARMSTRONG-JONES, M.D., F.R.C.P.
(Lately Consulting Physician in Mental Diseases to the London Military Command and temporary Lieutenant-Colonel R.A.M.C.).

London, W., Jan. 13th.

PREVENTION OF VENEREAL DISEASE.

SIR,—The letter in your issue of January 10th from the President and Honorary Secretary of the Society for the Prevention of Venereal Diseases seems to require comment.

By invitation I attended the conference held by the society on December 16th, 1919, and in the discussion I joined others in making strong protests that in the printed answers sent to inquirers, and in the "Aims and Objects" of the society, copies of which had been sent to me, and were also distributed at the meeting, there was not a single word of advice or warning against incontinence. The only

subject named in the advice to inquirers was "the prevention of venereal disease by immediate self-disinfection."

As a preamble to the "Directions for men," it was stated that "venereal disease can be prevented with almost complete certainty if the right precautions be taken in time." I urged that the omission of any reference to the need for premarital continence, and the unduly optimistic assurance of "almost complete certainty" of protection from infection, might have the *effect* of leading many young inquirers to believe that there was no alternative to fornication, and that the risks associated with it could be very largely eliminated. This belief was not of course the intention of the society, but would naturally follow the reading of the "directions" when they stood alone in the pamphlet.

In your issue of January 10th there is a letter from the President and Honorary Secretary of the Society enclosing a copy of what is clearly a second edition of their "Aims and Objects." This now begins with the following new sentence: "It is obvious that the best way of avoiding venereal disease is to abstain from promiscuous sexual intercourse." This important sentence did not appear in either of the pamphlets issued at the date of the conference (December 16th), and has evidently been now inserted as a result of criticism at the conference and in the subsequent correspondence in your JOURNAL.

The words are satisfactory so far as they go, and perhaps in the next edition of their "Aims and Objects" the Council of the Society will be still more explicit as to the value and practicability of continence before marriage, and will tell their inquirers that sexual intercourse ("promiscuous" or otherwise) is not essential to maintain mental and physical health, and that there is no real difficulty in such continence if the mind and body are actively occupied in other directions, and if sexual stimuli are carefully avoided.

The Society is realizing the difficulty of trying to preach clean living and prophylactics together, but on the other hand, there cannot be, and must not be, any divorce between morals and medicine.

Apart from national continence in men, prostitution, whether amateur or professional, cannot cease, and no real opportunity can arise for relieving the women from their dreadful occupation, and no successful effort can be made to redeem their misspent lives.—I am, etc.,

AMAND ROUTH, M.D., F.R.C.P.

P.S.—I enclose printed copies of the "Directions for Men" and of the "Aims and Objects" of the Society as issued at the date of the conference on December 16th, 1919. A. R.

London, W., Jan. 12th.

SIR,—Lord Willoughby de Broke and Mr. Wansey Bayly may rest assured that we do not for a moment believe that any member of their society, as an individual, would deliberately incite youth to acts of immorality. But we strongly hold the opinion that the leaflet of instructions to men issued by that society, which contains no single word in favour of continence, does so incite, and of this we have evidence in our possession.

We have read the paragraph—published in the last issue of the BRITISH MEDICAL JOURNAL—which has been added to the pamphlet setting forth the aims and objects of the society since the meeting at Westminster on December 16th, 1919. We welcome this substantial advance towards the broader and more comprehensive policy of the National Council for Combating Venereal Diseases, and trust that in a short time all those of our profession who, whatever opinion they may hold on the vexed question of prophylaxis, are at one in their wish to diminish the incidence of this disease, will concentrate their energies on fighting the mischief rather than wasting them in controversy about a "packet."—We are, etc.,

E. B. TURNER.
OTTO MAY.

London, W.C. 1, Jan. 12th.

SIR,—Does "M.A., M.D.Cantab.'s" letter (January 3rd) not apply as much to treatment as to prophylaxis of venereal disease? And would we become heavenly guides by making immorality as dangerous as possible by refusing to alleviate its consequences?—I am, etc.,

Pau, Basse Pyrenees, Jan. 6th. F. LEONARD BROWN, M.D.

INTRAMUSCULAR INJECTION OF QUININE.

SIR,—The clinical results of intramuscular injections of quinine in severe cases of malaria are so good that it is to be hoped that a contemplation of the list of possible evil effects of the procedure, and of the results of experiments on animals, which are recorded in your issue of January 3rd, will not deter any medical man from using this method of exhibiting the drug when necessary. If ordinary care is taken in regard to sterilization of syringe, of solution, and of skin, if the vicinity of large vessels and nerves is avoided, and if injections are not repeated in the same area, the probability of any bad effect following this method of administration is small.

I speak from a large experience in India, Aden, China, and Macedonia, and have found intramuscular injection so effective that I consider that any medical man who allows a patient to die, or even to become seriously ill, from malaria, without having used this (or the intravenous) method of introducing quinine into him, should be held to be gravely at fault.—I am, etc.,

S. F. CLARK,
Colonel A.M.S. (ret.).

Brighton, Jan. 12th.

The Services.

HONOURS.

MENTIONED IN DISPATCHES.

A SPECIAL Supplement to the *London Gazette*, dated January 12th, gives a further list of those mentioned for distinguished and gallant service and devotion to duty in different spheres of the war. The following medical officers are included:

Hospital Ships.

Lieut.-Colonel H. A. Williams, D.S.O., I.M.S., Surgeon-Major B. Pares, C.M.G., D.S.O., Royal Horse Guards; Majors E. L. D. Dewdney, R.A.M.C.(T.F.), and C. L. Dunn, I.M.S.; temporary Majors J. G. Heath, R. T. Meadows, D.S.O., P. J. A. Seccombe, T. Walcot, and A. W. Wilcox, R.A.M.C.; Captains I. M. Byers and J. W. Grice, R.A.M.C.; temporary Captains (acting Majors) W. A. Clayton, H. McIntyre, and H. H. O'Heffernan, R.A.M.C.; temporary Captains H. B. Emerson, J. H. Glover, W. R. G. Hamilton, T. Heywood, W. P. Jones, H. A. Lane, J. M. Lazenby, G. W. P. Maitland, and R. S. Smith, R.A.M.C.; Lieutenant (acting Captain) E. H. Rainey, R.A.M.C.

France.

Colonel N. Faichnie, M.B. (late R.A.M.C.); Major J. H. Gurley, R.A.M.C.; Captain D. C. Scott, R.A.M.C.(T.F.); temporary Captain H. Body, R.A.M.C.

East Africa.

Major H. W. Illius, I.M.S.

Egypt.

Lieut.-Colonel (acting Colonel) C. Garner, C.B.E. (R.P.); Lieut.-Colonel P. S. Lelean, C.B.; Captain (acting Major) A. E. Richmond, R.A.M.C.; Captains R. H. Maingot and P. P. J. Stewart; temporary Captains W. I. Adams, T. L. Clark, W. E. R. Dimond, F. W. Grant, F. A. L'Estrange, T. D. Miller, G. C. Ramsay, S. M. Vassallo, M. J. T. Wallis, and H. G. E. Williams, R.A.M.C.; Lieutenant (temporary Captain) Wm. Cameron, R.A.M.C.; Captains D. R. Hennessy and P. W. Ransom, R.A.M.C.(S.R.); Captain (acting Lieut.-Colonel) J. Blackwood, R.A.M.C.(T.F.); Captains S. A. Mann, C. H. Welsh, and R. Willan, R.A.M.C.(T.F.).

Lieut.-Colonel C. B. Blackburn, O.B.E., A.A.M.C.; Majors (temporary Lieut.-Colonels) J. R. McN. Beith, and M. W. Cave, A.A.M.C.; Majors E. K. Parry, M.C., and H. Sutton, A.A.M.C.; Captains F. A. Comins (Dental Corps), C. R. Hodgson, and W. G. H. Tregear, A.A.M.C.

Lieut.-Colonel R. H. Walton, N.Z.M.C.; Major (acting Lieut.-Colonel) J. McC. A. Macmillan, I.M.S.; Captain (temporary Major) R. F. D. MacGregor, M.C., I.M.S.; Captain (acting Major) G. L. Duncan, I.M.S.; Captains A. W. Duncan and A. Seddon, I.M.S.; temporary Captain C. M. Ganapathy; temporary Lieutenants G. A. Hildreth and D. S. Otto, I.M.S.

Italy.

Temporary Captains (acting Majors) J. C. L. Day and H. E. Gamlen, R.A.M.C.; Lieutenant W. R. McLinden, R.A.M.C.(S.R.)

Mesopotamia.

Lieut.-Colonel A. R. O'Flaherty, R.A.M.C.; Captains (temporary Majors) T. J. Halfinan and H. G. Robertson, R.A.M.C.; Captain (acting Major) J. F. Grant, R.A.M.C.; Captain A. B. Preston, R.A.M.C.; temporary Captain (acting Lieut.-Colonel) T. H. Martin, R.A.M.C.; temporary Captains G. A. Back, B. E. A. Batt, N. G. Braham, M.C., L. D. Callender, A. L. Candler, H. Findlay, N. Gray, J. N. Lyons, M. D. Mackenzie, B. T. Saunders, R. G. Smith, P. Talbot, and G. S. Woodman, R.A.M.C.; temporary Lieutenant W. B. Vaile, R.A.M.C.; Captains (acting Majors) E. Butler and J. W. Cannon, R.A.M.C.(S.R.); Captains A. B. Black, I. Brawn, R. Colley, W. H. Dye, J. Le M. Kneebone, C. K. Mowll, and R. Rodger, R.A.M.C.(S.R.); Lieutenants W. M. Jones and L. K. Ledger, R.A.M.C.(S.R.); Captains (acting Majors) C. E. W. McDonald and A. Wilson, R.A.M.C.(T.F.); Captain J. S. Hopwood, R.A.M.C.(T.F.); Lieut.-Colonel (temporary Colonel) E. V. Hugo, C.M.G., V.H.S., and Lieut.-Colonel A. E. Berry, I.M.S.; Majors (acting Lieut.-Colonels) E. W. C. Bradfield, O.B.E., and M. J. Quirke, I.M.S.; Captains (acting Majors) R. A. Chambers, P. D. Chopra, E. W. O'G. Kirwan, I.M.S.; Captain J. C. De, I.M.S.; temporary Captains B. R. Chandorkar, S. B. Gothaskar, J. G. Mukharji, I.M.S.; Assistant Surgeons B. St. S. F. Lynsdale, A. E. Mathews, and S. C. Vanderwart, I.M.D. (Assistant Surgeon Branch).

Salonica.

Major (acting Lieut.-Colonel) W. L. Harnett, I.M.S.; Captain (acting Major) D. G. Stoute, R.A.M.C.(S.R.); temporary Captains W. D. Cruickshank, J. R. Davies, and A. C. Sturrock, R.A.M.C.; Captain (acting Major) I. Jones, R.A.M.C.(T.F.); Captains L. B. Clarke, G. Hardwike, P. Seymour-Price, and C. G. Skinner, R.A.M.C.(T.F.).

Obituary.

SIR THOMAS RICHARD FRASER, M.D., F.R.S.,

LL.D. Aberd., Glasg., Edin., Sc.D. Camb., etc.,

Emeritus Professor of Materia Medica and Clinical Medicine in the University of Edinburgh.

Of the distinguished quinquevirate who presided over clinical medicine (on the university side) in the Edinburgh Royal Infirmary in the early eighties of the past century, Sir Thomas Fraser has been the last to pass away. Sir Douglas Maclagan resigned in 1897, Sir Thomas Grainger Stewart died in 1900, Sir Alexander Simpson resigned in 1905 and died in 1916, Professor Greenfield passed away in 1919, and now the last of the "Big Five" has gone to his rest full of years and honour. All these were professors of one other subject in addition to clinical medicine, a fact which in itself marks the gliding of the years and the changes in university teaching and infirmary practice, for the tendency now is no longer to burden the clinical staff with such things as medical jurisprudence, pathology, gynaecology, and materia medica, but to leave it free to develop along its own lines. Probably none but the most persistent *laudatores temporis acti* would wish it otherwise; but assuredly the five professors named rose brilliantly to the heights of success in their double task, and the subjects they taught suffered no abatement in their capable hands.

Thomas Richard Fraser, who died early in the morning of Sunday, January 4th, was born at Calcutta in February, 1841, and so had reached the ripe age of nearly 79 years. He was educated at public schools in Scotland and at the University of Edinburgh, and the keynote of his whole life was struck when at his graduation as M.D. in 1862 he gained a gold medal for his thesis on the characters, actions, and therapeutic uses of the ordeal bean of Calabar (*Physostigma venenosum*, Balfour), published in the *Edinburgh Medical Journal* for 1863–4. Another event at this time had its determining influence on Dr. Fraser's life, and that was his appointment by Sir Robert Christison as his assistant in the Materia Medica Department in the University of Edinburgh. Two other determining steps in his career were his appointment as assistant physician to the Royal Infirmary in 1869, a post which he held till 1874, and his launching out as a lecturer on materia medica in the extra-mural school in 1870. Meanwhile he had been busy with pharmacological research, and in 1864 had written on "The moth of the esere or ordeal bean of Old Calabar," and in 1867 had published "A preliminary notice of the Akazga ordeal of West Africa and of its active principle." These papers were soon followed by the more important essays on "The antagonism between the actions of physostigma and atropia" (read before the Edinburgh Royal Society), and in 1873 on "The kombé arrow poison" (*Strophanthus hispidus*, D.C.) of Africa in the *Journal of Anatomy and Physiology*). In 1874 Dr. Fraser resigned his infirmary and extramural appointments to become medical officer of health for Mid-Cheshire, and during the following three years he performed the duties of that office, at the same time retaining his connexion with materia medica by acting as examiner in that subject in the Universities of London and Edinburgh. In 1877, however, his incursion into public health terminated, and henceforth he gave his whole energies to the subject of his first choice, materia medica, and especially pharmacology.

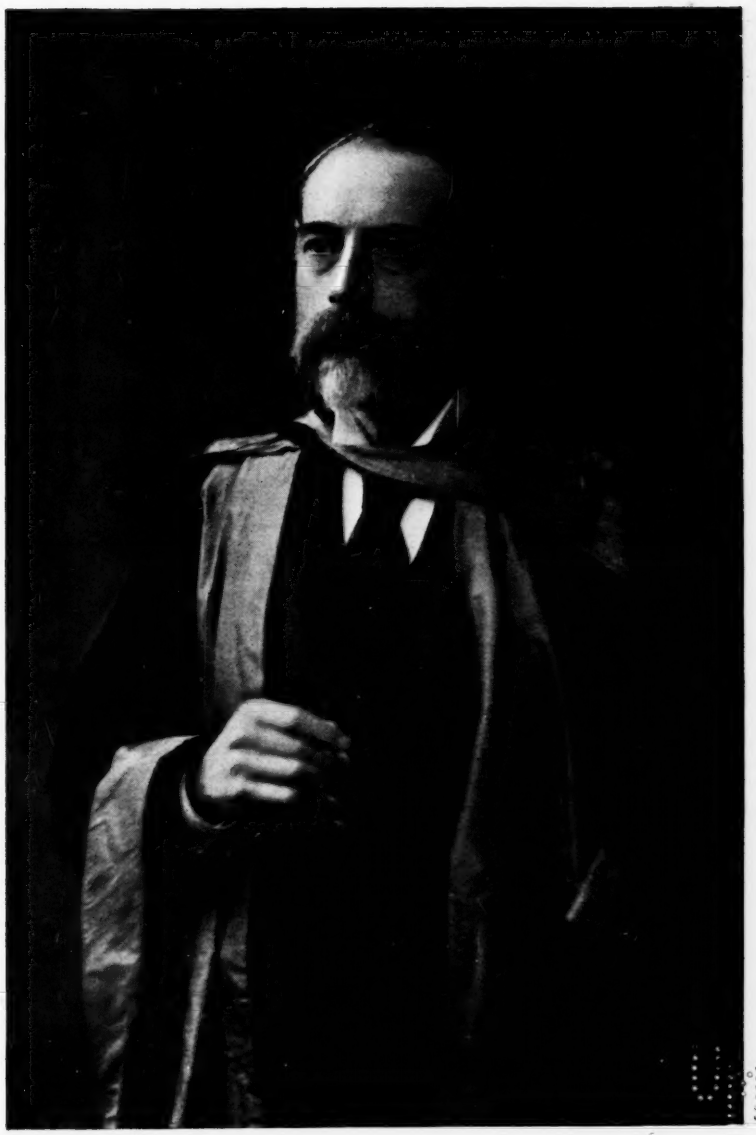
The way for this decision was opened up by the resignation of his revered and highly distinguished teacher and chief, Sir Robert Christison; Dr. Fraser's appointment to the vacant chair (1877), and to the post of physician to the Royal Infirmary (1878), were fortunate choices, both from the point of view of the new Professor and of the institutions he was thus called upon to serve for so many fruitful years. That his fame was already known outside the limits of Scotland was proved by his appointment (1877) by the Lords of the Admiralty as one of the two medical members of the committee to inquire into the outbreak of scurvy in Sir George Nares's Arctic expedition.

During the following forty years (1877–1917) Professor Fraser was teaching materia medica in the university and clinical medicine in the Royal Infirmary to thousands of medical students. In the classroom he had to deal with a somewhat dry subject, but it lived in his lectures, and took on an unexpected interest and even fascination, especially when he was considering tobacco, alcohol, and the arrow poisons and ordeal beans. There was always (and this applies to his clinical work as well, and to his speaking in public) a note of distinction in what he said, and an unerring instinct for *le mot juste* which held his hearers and never failed to win their applause. He was in the very front rank as a clinician, and in the Infirmary had a following which always included many of the best men of the year. In the laboratory he was in his element, and the wide world benefited by the work done there by Professor Fraser and his assistants, Professor Matthew Hay, the late Dr. Tillie, Dr. Sillar, and others.

But the forty years of which we are speaking held many other things for Professor Fraser. Thus he was Dean of the Faculty of Medicine for many years; he was a member of the University Court between 1904 and 1913; from 1905 he represented the University on the General Medical Council. He was President of the Royal College of Physicians of Edinburgh in 1900–02; of the Medico-Chirurgical Society of Edinburgh in 1901–03; of the Section of Materia Medica and Pharmacology in the International Medical Congress held in London in 1881; and of the Association of Physicians of Great Britain and Ireland in 1908–09. He acted also as medical adviser to H.M. Prison Commission in Scotland and was consulting physician to the Standard Life Assurance Company. But perhaps the most outstanding event of the forty years in these, so to say, subsidiary activities was Professor Fraser's selection (in 1898) to be Chairman of the Indian Plague Commission which was investigating that fatal scourge in our great Eastern Dependency. This necessitated absence from Edinburgh, but with the aid of Principal Sir William Turner, who made interim arrangements, and of Professor Simpson, who acted as Dean of the Medical Faculty, Professor Fraser was set free to do a piece of real national service and also to add very considerably to our knowledge of the dissemination of plague and of the best means to check its ravages. On returning from India Professor Fraser received (in 1902) the honour of knighthood from his Majesty King Edward.

In his later years honours multiplied upon Sir Thomas Fraser. He was already a Fellow of the Royal Societies of London and Edinburgh, and on the death of Sir William Gairdner in 1907 he was appointed Honorary Physician-in-Ordinary to the King in Scotland. The Universities of Aberdeen and Glasgow conferred upon him their honorary degree of Doctor of Laws; he was a laureate of the Institute of France; Cambridge gave him its honorary Sc.D., and Dublin its honorary M.D.; and on his retirement from his chair in 1918 his Alma Mater showed its appreciation by the gift of the honorary LL.D., whilst his many friends presented him with his portrait.

Something has been said of the beginnings of Sir Thomas Fraser's scientific and literary work; but the accession to the duties of his professorship did not check his labours in research, and results continued to flow from his laboratory. An interesting investigation was that which he carried through in conjunction with Emeritus Professor Crum Brown on the chemical constitution and physiological action of poisons, and for which the Royal Society of Edinburgh awarded them the Macdougall-Brisbane prize. He was also Keith prizeman (Royal Society of Edinburgh), and Cameron prizeman in therapeutics (University of Edinburgh). More than one communication came from his pen on strophanthus (1886, 1891, 1895), and he did much to establish its position in cardiac affections, and it is unnecessary to do more than mention the use of physostigmine in ophthalmology. So, too, his work on serpent's venom, on the limitations to the antidotal power of antitoxins, on immunization against serpent's venom, and on the antivenomous properties of the bile of serpents was of high interest and great practical value. He wrote, with the late Dr. Alexander Bruce, on diabetic neuritis, and, with the late Dr. Joseph Tillie, on the arrow-poison of the Wa Nyika and other tribes of East Equatorial Africa. Outside these, which may be called the distinctive subjects of his work, Sir Thomas Fraser wrote (always instructively) on the salicyl compounds in acute rheumatism; on the nitrites in the dyspnoea of asthma and bronchitis; on bone marrow in pernicious anaemia; on opium, morphine, and codeine in diabetes mellitus; and on potassium bichromate in gastric affections. In all these writings there is to be observed the same note of distinction



SIR THOMAS FRASER, M.D., F.R.S.

Photo A. Swan Watson, Edinburgh.

which characterized his speaking; but, more than this, some of them at least will permanently benefit mankind by reducing disease and suffering.

His recreations were fishing, shooting, golf, and photography, all of which he enjoyed to the full at his country home at Druimbeg, Acharacle, Argyllshire, but recently a bronchial affection seriously hampered him in these pursuits.

Some seven years ago Sir Thomas Fraser met with an accident near the door of his own house in Drumsheugh Gardens, which resulted in fracture of the thigh, and it was feared that this might mean retirement from active work, but his marvellous vitality came to his aid and, reinforcing the assiduous care of his surgeon and physician, placed him once more in harness for all his duties. Of late years, however, the bronchial affection referred to sorely handicapped him, and since he retired from his professorship in 1918 he has laboured under considerable physical disability. About a fortnight before his death he was reported to be seriously ill, but he revived again, only to lose ground once more.

Sir Thomas married in 1874 a daughter of the late Rev. R. Duncan, and Lady Fraser survives her husband. They had seven children; but of these one son was lost in a submarine early in the war, another was killed in France, yet another was wounded there, and a son-in law was killed. Their fourth son, a doctor in America, went to France and holds an important post with the Army of the Rhine. There were three daughters, one of whom is the wife of Lieut.-Colonel Kenneth Dingwall, D.S.O.

After a service in the Cathedral Church of St. Mary, the funeral took place to the Dean Cemetery on January 8th, and was attended by representatives of the University, the Royal Colleges, the Royal Infirmary, and other public bodies. Sir Alexander Ogston was present representing the King.

Sir JAMES O. AFFLECK, Consulting Physician, Edinburgh Royal Infirmary, writes:

By the death of Sir Thomas Fraser another outstanding figure has been removed from our ranks. He had only recently retired from his position as Professor of Materia Medica and of Clinical Medicine in Edinburgh University, but during his long tenure of these offices his work had gained for him a foremost place in the world of medicine as an investigator and a physician. His researches, begun from an early period in his career, and continued throughout his whole life, were fruitful in providing the profession with many potent therapeutic agents of proved efficacy with which his name will ever stand associated.

When called to succeed his great master Christison every one felt that the right man had been chosen for the chair. In the affairs of the university and especially its medical faculty he took a leading part, and proved a strong and trusted counsellor.

In the Royal Infirmary, with which his connexion as a physician extended over forty years, he carried on clinical teaching greatly to the advantage of the men who were privileged to act as his students and clerks. His standard was high, and he exacted a like degree from them, inspiring them with the spirit of earnestness and accuracy which characterized his own work. Indeed, the dominant feature in Fraser's whole career was his earnestness in doing the work his hand found to do and in searching for the truth. His personal influence in this direction could not fail to tell upon the lives and the practice of the thousands of pupils who had been under his instruction and guidance.

In the manifold positions he was called to occupy Fraser ever gave the impression of a man of power, while his dignified and kindly bearing won for him the respect even of those who might chance to differ from him. In the later years, although suffering from considerable physical disablement the result of an accident, he showed no lessening of his vigorous mental powers, nor of his interest in all that related to the advance of scientific medicine.

When called a few months ago to receive the degree of LL.D. from his Alma Mater, the enthusiasm which his presence evoked bore emphatic testimony to the academic and the public appreciation of his highly distinguished and honourable career.

Dr. W. C. SILLAR, Lecturer on Experimental Pharmacology in the University of Edinburgh, writes:

With the passing of Sir Thomas Fraser there has disappeared one of the most outstanding personalities of the Edinburgh Medical School and certainly one who has left his impress most deeply on the generations of students who came under his influence. Perhaps the most conspicuous features of his method of teaching were, on the one hand, a power of criticism which exposed unsparingly the weaknesses in the intellectual armour of his pupils, and, on the other, an insistence on accuracy both of observation and of recording which to some may have appeared meticulous, but which was invaluable to those capable of appreciating its value. He was one of the earliest, if not the first, among pharmacologists to aim at the accurate expression of dosage in terms of body weight and to analyse pharmacological action into its component parts, advances which gave to pharmacology a claim to be considered among the exact sciences. Ambiguity and slovenliness of expression were hateful to him. There was no possibility of misunderstanding that which he wished to express clearly, nor were his statements with regard to those facts which he observed himself subsequently found to be erroneous.

His courage and persistence in the face of grave physical difficulties compelled the admiration even of those who feared his undertaking work for which he was no longer physically fit; and those who opposed his opinions could not but be impressed by the ability with which he maintained his point of view, and by the laborious pains with which he collected and marshalled his facts and arguments. His work was characterized by thoroughness and completeness, and many of his observations obtained publicity only in his lectures on materia medica and on clinical medicine. His pioneer work on antagonism earned for him a world-wide reputation, and there have been few names associated with one school alone which have added more to the reputation of that school than has the name of Fraser of Edinburgh. As an authority on medical education, from his twofold experience as laboratory investigator and clinician, he always maintained the importance of a philosophical and scientific training preliminary to and accompanying the study of the professional medical subjects, and ascribed the eminence of the best Edinburgh graduates to the insistence upon and emphasis laid on this aspect of education. He was a powerful advocate of the advancement of knowledge by investigation, and constantly deplored the encroachments made on the time available for this which the teaching demanded of him necessitated. His keen glance and polished diction will long be remembered by the successive years of students who listened to his lectures in the theatres of the Materia Medica department and of the Royal Infirmary.

THE LATE CHARLES LOUIS TAYLOR.

WE have received the following kindly note on our late colleague from the President of the British Medical Association:

The debt of the British Medical Association and of its JOURNAL to Charles Louis Taylor is so great, and yet perhaps so little recognized, that I desire, if I may, to add to the obituary notices of him.

Many years ago, when Mr. Hart was editor of the JOURNAL, I had some conversation on business matters with Mr. Taylor, and a little later we happened to travel together abroad for a short time. During this time unfortunately Taylor fell ill, and I was privileged to render him some little professional assistance, assistance which, after his manner, he appreciated too generously. Thenceforward our friendship became a closer intimacy. We corresponded not infrequently, sometimes on professional matters, more often on literary and general subjects. When I visited at the offices of the Association I generally took occasion also to call upon Taylor. It was one of our little games to test the correctness of my identification of his anonymous articles. These were usually so acute, learned, and witty, that although every now and then one of them would escape my notice, I was very rarely wrong in my positive attributions.

Taylor was a delightful writer, erudite in many ways, general and particular, but especially in historical subjects.

He took pleasure in some by-ways of scientific history on which, and other such matters, he contributed much to the contents, and not a little to the gaiety, of the JOURNAL.

Taylor's wit and keen sense of humour were always entertaining, often brilliant and effective. Many of his paragraphs—fugitive alas!—were in their ironical and humorous vein singularly happy. Moreover, his wit was always barbed with point and precision. No inaccuracy escaped him, and he would smilingly pin the error to the counter, or dismiss it with a whimsical allusion. Sometimes he permitted himself to draw a sharper arrow, when folly and presumption had to smart; but he was too kind-hearted to use the weapon unless the gravity of the occasion required it.

It seemed a pity that so learned and accomplished a man, and so finished and sprightly a writer, should have lived so much in seclusion; but he seemed happiest in his privacy with many books and the few friends who sympathized with his thoughts and studies. I dare say he knew how great and indeed exceptional a power for good his position gave him, both in life and literature, and was content to do it by stealth.

Men of his kind are not turned out in "mass production"; after each one the mould is broken. On Taylor's retirement the Staff of the JOURNAL lost a brilliant colleague; but happily in this world there are diversities of gifts and many kinds of voices, and none of them without significance.

C. A.

WE regret to record the death of Dr. JOHN WAUGH of Toddington, Bedfordshire, on December 30th. He was born in 1850 at Clonakilty, co. Cork, and received his medical education at Trinity College, Dublin, where he graduated M.B., M.Ch. in 1871, proceeding to the B.A. and M.D. in 1882. Dr. Waugh settled at Toddington forty-eight years ago and practised there with conspicuous success. He was highly esteemed by his professional brethren. He was president of the Bedford Medical Society in 1901 and of the Bedfordshire Division of the British Medical Association for three successive years during the war. At the time of his death he was Chairman of the Bedfordshire Medical Committee, a post to which he had been elected in 1912. He had been a J.P. for the Woburn Division of Beds since 1898 and Chairman of Woburn Bench since 1909. He was for many years a member of the Bedfordshire County Council, was a member of the Education and Sanatorium Committees, and chairman of the Maternity and Child Welfare Committee, which, during his term of office, established a service of health visitors throughout the country. He did much to improve the nursing of the sick poor in the agricultural district in which he lived and for the benefit of the maternity and nursing service in the rural areas. Dr. Waugh was a member of the County Insurance Committee and chairman of the Toddington Parish Council. For many years he did most of his visiting on horseback. Some years ago he suffered a severe riding accident from which he never altogether recovered. He was a man of firm conviction, but of much charm of manner, which endeared him to the people among whom he worked so long.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

DIPLOMA OF PSYCHOLOGICAL MEDICINE.

THE Committee of Management of the Cambridge University Diploma of Psychological Medicine announce that examinations for the Diploma will be held, for Part I in October, 1920, and for Part II in December, 1920. A course in preparation for these examinations will be held at the Cambridge Psychological Laboratory from July 19th to August 29th inclusive, and will be conducted as follows:

Part I: Psychology with Practical Work, J. P. Towson, M.A., M.D.; Anatomy and Physiology of the Nervous System, with Practical Work, E. D. Adrian, M.A., M.D.

Part II: Abnormal Psychology, J. F. E. Prideaux, M.D.; Psychiatry, Lunacy Law and Asylum Administration, M. A. Archdale, M.D., Superintendent of the Cambridge County Asylum.

The fees are for Part I £5 5s., and for Part II £4 4s. Further information may be obtained from the Director of the Psychological Laboratory, Cambridge.

UNIVERSITY OF LIVERPOOL.

THE Diploma in Public Health has been awarded to the following: A. J. W. Cunningham, R. W. Gemmell, D. S. A. O'Keeffe.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on January 8th, when Sir George H. Makins was in the chair.

The President reported that Mr. John Murray's term of office on the Court of Examiners would expire on February 11th, and that the vacancy would be filled up at the Council meeting on February 12th. Mr. Murray is re-eligible.

The Hunterian Oration will be delivered by Sir Charters J. Symonds in 1921.

The Secretary reported that no essay had been received on the investigation and treatment of injuries of the thorax received in war, the Jacksonian Prize subject for the past year.

Sir Charters J. Symonds was re-elected to represent the College on the council of Queen Victoria's Jubilee Institute for Nurses for a period of three years from March 1st, 1920.

As arising out of the resolutions passed at the meeting of Fellows and Members on November 27th, 1919 (BRITISH MEDICAL JOURNAL, December 6th, p. 760), it was decided to appoint a committee to consider the question of the representation of Members on the Council.

THE NUMBER OF MEDICAL AND DENTAL STUDENTS.

WE are indebted to the Registrar of the General Medical Council for the following particulars with regard to the number of medical and dental students, respectively, registered during 1919 and the seven preceding years. It may be pointed out that as registration of students is not enforced by all the licensing authorities the totals probable fall short of the actual number of students.

Medical Students.

1912	... ...	1397	1916	... ...	1875
1913	... ...	1480	1917	... ...	2150
1914	... ...	1600	1918	... ...	2253
1915	... ...	1918	1919	... ...	3393

Dental Students.

1912	... ...	336	1916	... ...	158
1913	... ...	361	1917	... ...	143
1914	... ...	294	1918	... ...	161
1915	... ...	217	1919	... ...	612

Medico-Legal.

PROFESSIONAL SECRECY.

DURING the hearing of an undefended suit for divorce on January 13th, Mr. Justice McCardie made some observations on professional secrecy.

The petitioner was the wife and adultery by the respondent was proved; the cruelty consisted of the communication of syphilis by the respondent to the petitioner. Dr. Salomon Kadinsky, Medical Officer of the Venereal Department, Westminster Hospital, was called to prove that the petitioner was suffering from syphilis. Before being sworn he handed a letter to the Judge from the Chairman of the House Committee, stating that the Westminster Hospital had adopted the national scheme for dealing with venereal disease, and calling attention to the statutory regulations, one of which enjoined secrecy. The regulation referred to is contained in the Public Health (Venereal Diseases) Regulations, 1916, and is as follows:

Article II (2). All information obtained in regard to any person treated under a scheme approved in pursuance of this Article shall be regarded as confidential.

Mr. Justice McCardie made the following observations, as reported by *The Times*: "The doctor [of the venereal centre] was one of those who were desirous of assisting the scheme for treating venereal diseases in every way, and for the purpose he wished loyally to maintain the secrecy which rightly rested upon him. But the witness would appreciate that in a court of justice there were even higher considerations than those which prevailed with regard to the position of medical men. He wished to say that, apart from the obligations which might be imposed on medical men by the order of His Majesty's judges, it was desirable that there should be the most loyal observance of the confidence which was reposed in them by patients. He was glad to say that the history of the medical profession was most honourable, and it was to be hoped that its members would always retain the confidence placed in them."

Dr. Kadinsky was then sworn and gave evidence.

The observations of the judge raise a matter of considerable medical interest, with which are involved legal considerations of some complexity. We propose to refer to the matter more at length in our next issue.

Medical News.

UNDER the auspices of the Fellowship of Medicine and Post-Graduate Medical Association, the British Association of Radiology and Physiotherapy has arranged a series of lectures in radiology and electrology, qualifying for the Cambridge diploma (see BRITISH MEDICAL JOURNAL, January 10th, 1920, p. 55). They will be given at the house of the Royal Society of Medicine, 1, Wimpole Street, London, every Monday and Wednesday, at 5.30 p.m., commencing February 2nd, 1920. The opening lecture will be given by Dr. Turrell of Oxford, who will deal with the history of electrotherapeutics. For those wishing to take the diploma the fee for the course is £15 15s., with the additional enrolment fee of 10s. 6d. to the Fellowship of Medicine and Post-Graduate Medical Association; but members of the Fellowship Post-Graduate Course are invited to attend any of the lectures advertised. A detailed syllabus will be issued shortly and all information can be obtained from Miss M. A. Willis, secretary to the Fellowship of Medicine and Post-Graduate Association, 1, Wimpole Street, London, W.1.

A SUCCESSFUL reunion dinner of the medical men of Cheltenham and district who had served with the R.A.M.C. was held on January 10th at the Lansdown Hotel. A most enjoyable evening was passed, and interesting reminiscences were exchanged, as those present had between them seen service in all parts of the globe. Dr. J. Rupert Collins was chairman, and there were present Drs. Braine-Hartnell, Barret Cardew, Sanderson Clow, D. Clow, Conder, Cox, Lidderdale, Longridge, Macfie, Meyrick-Jones, Moore, O'Leary, Park, Peake, Pearson, Allman Powell, H. Powell, Curtis Webb. The usual toasts were duly honoured, and it was unanimously decided that the dinner should be made an annual one.

A DINNER was held at the Connaught Rooms, London, on January 9th, by the Vermin Repression Society to celebrate the enactment of the Rats and Mice Destruction Bill, introduced last year into the House of Lords by Lord Aberconway on behalf of the society. The chair was taken by Lord Aberconway, and Sir Arthur Griffith-Boscawen, M.P., Parliamentary Secretary to the Ministry of Agriculture, attended and spoke appreciatively on behalf of the Government. The other speakers included Dr. Andrew Balfour and Dr. Louis Sambon, who each made interesting observations on the medical aspects of the campaign against rats and other vermin.

THE annual general meeting of the Harveian Society will be held at the rooms of the Medical Society of London, 11, Chandos Street, on Thursday, January 22nd, at 8.15 p.m.

AT the annual meeting of the Royal Microscopical Society on Wednesday next, at 8 p.m., the president, Mr. J. E. Barnard, will deliver an address on the present status of microscopy.

A MEETING to further the objects of the Peoples' League of Health will be held at Claridge's Hotel, W.1, on January 20th, when Lord Burnham will take the chair at 3 p.m. Among the speakers will be Miss Olga Nethersole, the founder of the League, Sir Alfred Fripp, K.C.V.O., F.R.C.S., and Mr. E. B. Turner, F.R.C.S., Chairman of the Medical Committee of the National Council for Combating Venereal Disease.

SIR ROBERT ARMSTRONG-JONES will begin a course of four lectures on physic at Gresham College, Basinghall Street, E.C., on Tuesday next, January 20th, at 6 p.m. The subject of the course is "The animal parasites affecting man, and the diseases caused by them." Admission to the lectures is free.

A COURSE of eight lectures on psychopathology will be delivered by Dr. William Brown, Reader in Psychology in the University of London, at King's College, Strand, W.C.2, on Mondays, at 5.30 p.m., beginning on Monday, January 26th. Although not open to the general public, they will be open to medical students and qualified medical practitioners without fee or ticket.

THE King of Italy has conferred the Cross of Chevalier of the Order of the Crown of Italy on Sir Donald MacAlister, K.C.B., President of the General Medical Council, for services in the war; and permission to wear the decoration in this country has been granted by Royal Warrant to the president.

OWING to the unstable nature of hydrogen peroxide solution, the difficulty of obtaining suitable containers and their cost, the excessive loss by bursting and leakage, the great bulk of the liquid, and the high cost of transport, the Army Council has issued an instruction limiting the supply to very special cases which cannot be satisfactorily treated by some other antiseptic.

DR. ADDISON will receive on January 23rd a deputation from the British Federation of Medical and Allied Societies, which will place before him its views on certain aspects of the larger questions of the provision of efficient medical services for the community.

DR. JAMES MIDDLETON, who recently retired after practising in Peterhead for thirty years, has been presented by his friends and patients with a silver tea and coffee service, a silver salver suitably inscribed, a revolving bookcase, and a travelling rug.

A COURSE of lectures on syphilis will begin at King's College Hospital on Friday, January 30th, at 9.15 p.m. The lectures will be given in the Medical School, and will be continued on succeeding Fridays to June 18th. They will be illustrated as far as possible by cases, demonstrations of technique, and by the epidiascope. Each branch will be dealt with by a member of the staff with special experience of the subject, and it is hoped that a complete presentment of modern teaching on syphilis, and especially of those aspects which are of interest to practitioners, will be given. Gentlemen taking the course can also attend, by arrangement, for clinical teaching and practical instruction. The fee for the course is £3 3s.; further information can be obtained from the Secretary of the Medical School, Denmark Hill, S.E.5.

THE Faculty of Medicine of the University of Birmingham has instituted this year a course of post-graduate lectures on venereal disease to medical practitioners. Three lectures have already been given by Dr. Douglas Heath on syphilis and soft sore. Mr. Bernard Ward will lecture on gonorrhoea in the male, on January 21st and 28th, and February 4th; Mr. Beckwith Whitehouse will lecture on gonorrhoea in the female, and on syphilis in relation to pregnancy, on February 11th, 18th, and 25th; and Dr. Eric Assinder will lecture on the pathological aspect of venereal disease, on March 3rd. The lectures are given in the anatomical theatre, Edmund Street, at 4.15 p.m. There will also be clinical demonstrations at the General Hospital and Queen's Hospital on dates to be fixed at the end of each section of lectures. Admission to the lectures is free. For the full course of demonstrations a fee of two guineas is charged.

THE Royal Mail Steam Packet Company, in announcing that the *Almonzora* has been put on the service to Brazil and the River Plate, states that the *Asturias*, which worked for three years as a hospital ship, was not sunk as has been generally supposed. She escaped a first torpedo attack but was badly damaged in a second. She is being repaired, and will shortly be working as a mail boat again.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*: telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES AND ANSWERS.

LIP READING.

"I" asks where and how instruction in lip reading can be obtained by a deaf person.

*** Dr. Dundas Grant informs us that all necessary information can be obtained from Mr. W. Nelson, Royal School for the Deaf, Old Trafford, Manchester; Mr. S. Coward, Council School for the Deaf, Crown Street, Liverpool; or Mr. Jno. Brown, Institution for the Deaf, Edgbaston, Birmingham.

INCOME TAX.

"E. M. S. S." entered on an appointment on May 1st, 1919, at £350 a year; there have been no previous earnings. What is his income tax liability?

*** Income tax liability must be reckoned as for the Government financial year, and "E. M. S. S." is assessable for the year ending April 5th, 1920, on, approximately, ten-twelfths of £350, say £292, less any appropriate allowances—for example, £120 abatement, life assurance premiums, etc.

"MASS REFLEX."

"W. H. C."—The term "mass reflex" was introduced by Dr. Riddoch to denote a generalized defensive reflex that takes place when the inhibitory action of the proprioceptive system has been removed owing to a lesion of the spinal cord. Thus, if in a case with total interruption of the spinal tracts but with a return of reflex activity in the lower limbs, an appropriate stimulus be applied, say to a foot, both legs are defensively flexed at the hip and knee-joint; the abdominal and pelvic muscles may also contract. The reflex then spreads to the visceral nervous system, the bladder and rectum may be evacuated, and vasomotor changes take place. A similar reflex may be elicited from a very young baby whose spinal inhibitory system is not yet developed.

TREATMENT OF PRURITUS.

"M. B." writes: On November 22nd, 1919, "Subscriber" asked for advice in the treatment of obstinate pruritus. May I suggest that possibly the cause may be an excessive carbohydrate diet and due also in part to an excess of protein in the diet as well? I first made this discovery in my own case after I had long been a sufferer from pruritus and had literally spent half the night, sometimes, in scratching myself. I find that if ever I over-indulge in sweet things invariably within a few hours I get a marked itching of the scalp and whole body, while so long as I abstain from sweets, except in strict moderation, I am entirely free from any suspicion of pruritus.

LETTERS, NOTES, ETC.

COPPER ALANIN IN INOPERABLE CANCER.

DR. JAMES DONELAN, London, W.1, showed at the meeting of the Section of Laryngology of the Royal Society of Medicine on November 1st a case of lingual cancer in which the patient had derived considerable comfort from intravenous injections of copper aminoproprionate (copper alanin). Although the advance of the disease would appear to be arrested, microscopic sections taken during the treatment showed that histologically the epithelioma was unaltered; particulars will be given in the *Proceedings*. The credit for suggesting this substance, amongst other forms of treatment, as a palliative for inoperable cancer, is, Dr. Donelan states, due to Dr. Shaw-Mackenzie. Intravenous administration of a 1 per cent. solution in doses of from 1 to 2.5 c.cm. has been attended with benefit, shown in a remarkable improvement in the general condition of the patients after one or two injections. The treatment appears to retard the advance of the disease, but the experience so far obtained does not allow it to be regarded as more than palliative. As long as the injections are continued from once to three times a week the apparent arrest is maintained, but if they are omitted even for a week a fresh advance can always be noted. It would, however, appear from this that the intravenous injection of this copper salt has some influence on the growth of cancer. Messrs. Boots, Station Street, Nottingham, inform us that the price of solid copper alanin is 30s. an ounce, and of the solution, 1 per cent., 6d. an ounce (without bottles).

THE UNMUSICAL SWAB.

G. P. B. writes: Here's one for your amusement column. The Clinical Research Association telegraphed the result of a throat swab I had sent for examination, no doubt stating "Organism not found." It was telephoned from the post office "Organist not found." My wife replied, "You mean *Organism*." They replied, "*Organist* is on the telegram."

THE TAGLIACOTIAN DOCTRINE.

COLONEL J. SMYTH, I.M.S.(ret.) (Clifton, Bristol), writes: With reference to the note at page 72 of the BRITISH MEDICAL JOURNAL, January 10th, on "The Tagliacotian Doctrine," Hindu mythology goes one better, for we read that Ganesha, having lost his head in battle, his followers stitched on an elephant's head quite successfully. It does not appear that he suffered subsequently even from the hoarseness experienced by Rabelais's patient.

WILKSIANA.

DR. S. D. CLIPPINGDALE (London, W.) writes: To the amusing story you relate of that witty physician the late Sir Samuel Wilks, you may, perhaps, care to add two others:

1. At the banquet given to celebrate his baronetcy Sir Samuel, commenting adversely upon his Christian name, said only three persons bearing the name Samuel had ever obtained eminence. These were the prophet, the writer of the dictionary, and the younger Mr. Weller.

2. Sir Samuel, who was a hater of fads and faddists, once said to a patient, "When your doctor tells you that your lunch ought to contain so many grains of carbon, so many atoms of hydrogen, and so many molecules of water, all you have to do is to send for a nice mutton chop."

IMPROVING US OFF THE EARTH.

AN account was given in *The Times* of January 7th of another grandiose scheme for improving the Charing Cross area. From the sketch plan it appears that Charing Cross monument is all that the architect, Mr. John Murray, proposes to leave behind. There is a certain Prussian thoroughness about the scheme of demolition, and the vast "monumental buildings that might be erected" are the sort of things the Kaiser would have approved after London had been entered in triumph and rebuilt in the best Berlin style. We are pained, however, to observe that the proposed Imperial Way, joining up Leicester Square and the Strand "through property of minor value at present," deletes No. 429, Strand, from the map. This office narrowly escaped demolition when the German bomb fell in Agar Street in September, 1917; we hope to be spared, too, the frightfulness of the new architecture.

SENILE MELANCHOLIA.

IT is an interesting if somewhat melancholy undertaking to watch the dulling effect on cerebral energy of the circulatory changes incidental to the advance of years, from the time when the rich copious blood supply of youth invests the world with a multi-coloured halo, the "clouds of glory" referred to by Wordsworth, till, as the pulse slows down and the arteries become narrowed, these "fade into the light of common day." The outlook on the world has changed. The sun shines as brightly as ever, the lark sings as loud and as long as of yore, but dulled senses perceive only "as through a glass darkly." Still later the diminished blood supply determines a state of physiological misery which may merge into melancholia, a state which is vividly portrayed by a poem of Sydney Dobell s called "Tommy's Dead." The old man, fast approaching dissolution, takes a despairing view of life and things in general:

> The ground is cold to my tread,
> The hills are wizen and thin,
> The sky is shrivelled and shred.
> * * * * *
> The rat and the mouse have fled,
> And the summer's empty and cold
> Over valley and wold.

Appetite and digestion have gone by the board, so he finds

> There's something wrong i' the cup, boys,
> There's something ill wi' the bread.

In fact, wherever he turns,

> There's a mildew and a mould,
> And the sun's going out overhead.

With such a dismal perception of his environment the aged man's confidence in the future is undermined, and he betrays a feeling of apprehension which is common enough at the sixth and seventh ages of man:

> You may give over the plough, boys,
> You may take the gear to the stead;
> All the sweat of your brow, boys,
> Will never get beer and bread.

A feeling that finds ultimate expression in the ejaculation that "'Tis time to go to sleep, boys," for "Tommy's dead."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 36, 37, 38, 39, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 34, 35, and 36.

THE following vacant appointments of certifying factory surgeons are announced: Abergele (Denbigh), Buckie (Banff), Castle Hedingham (Essex), Clogher (Tyrone), Hastings (Sussex), Hoylake (Chester), Leicester, East (Leicester), Leyland (Lancashire), Nelson (Glamorgan), Northallerton (Yorks, North Riding), Okehampton (Devon), Wakefield (Yorks, West Riding).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.